MESSOA

H.264 D1 Real-Time Digital Video Recorder

User's Manual

F34-200070-000A A1

Caution and Preventive Tips

- Handle with care, do not drop the unit
- Mount the unit in an equipment rack or place it on a solid, stable surface
- Indoor use only. Do not place the unit in a humid, dusty, oily, or smoky site
- Do not place it in an area with poor ventilation or in an area close to fire or other sources of heat. Doing so may damage the unit as well as cause fire or an electric shock
- When cleaning is necessary, shut down the system and unplug the unit from the outlet before uncovering the top cover. Do not use liquid cleaners or aerosol cleaners. Use only a damp cloth for cleaning
- Always shut down the system prior connecting or disconnecting accessories, with the exception of USB devices

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

This symbol intends to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

This symbol intends to alert the user to the presence of unprotected "Dangerous Voltage" within the product's enclosure that may be strong enough to cause a risk of electric shock.

Important Information

Before proceeding, please read and observe all instructions and warnings in this manual. Retain this manual with the original bill of sale for future reference and, if necessary, warranty service. When unpacking your unit, check for missing or damaged items. If any item is missing, or if damage is evident, DO NOT INSTALL OR OPERATE THIS PRODUCT. Contact your dealer for assistance.

Rack Mounting

Consult with the supplier or manufacturer of your equipment rack for the proper hardware and procedure of mounting this product in a safe fashion. Avoid uneven loading or mechanical instability when rack-mounting units. Make sure that units are installed to get enough airflow for safe operation. The maximum temperature for rack-mounted units is 40 °C. Check product label for power supply requirements to assure that no overloading of supply circuits or over current protection occurs. Mains grounding must be reliable and uncompromised by any connections.

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1. Overview

Versatile H.264 DVR is an integrated digital video recorder that combines the features of a time-lapse audio / video recorder, a multiplexer, and a video server to create a single security solution.

Its outstanding quadplex operation enables users to view live video, search and playback any recorded video by date/time or event, and remotely monitor the unit via internet on PC, MEANWHILE the recording of the DVR unit is ongoing simultaneously.

Versatile H.264 DVR provides the latest H.264 compression mode. Moreover, a marvelous implementation is the brand-new experience of Graphical User Interface (GUI) that optimizes the monitoring controls of the unit. With the quality displaying features, Versatile H.264 DVR is in the meantime enhanced to support Full HD 1080p output.

Versatile H.264 DVR is pre-installed with remote viewing and configuration software, which is a Web-browser plug-in allowing users to view live or recorded video images, and enables remote configuration. The remote software is stored in Versatile H.264 DVR and deployed over a LAN, WAN or Internet connection to remote Windows-based computers. This simplifies the installation and maintenance of the software components so all remote users are using the same software coming from the unit.

2. System Setup

The notices and introduction on system installation will be described particularly in this chapter. Please follow the description to operate the unit.

In order to prevent the unit from data loss and system damage that caused by a sudden power fluctuation, use of an Uninterruptible Power Supply (UPS) is highly recommended

2.1 Position the DVR

First, note to position / mount the DVR in a proper place and be sure to power off the unit before making any connections. The placed location should avoid hindering or blocking the unit from airflow. Enough airflow is needed to protect the unit from overheating. The maximum allowable temperature of operating environment is 40°C.

The unit utilizes heat-conducting techniques to transfer internal heat to the case, especially to the bottom side of the unit.

NOTE: Be sure the rubber feet are not removed, and always leave a space for air ventilation on the unit's bottom side.

2.2 Connect Devices to the DVR

This section lists some important notices that should be read before making any connection to the DVR.

Connecting Required Devices

Before power up the unit, cameras and a monitor should be connected to the unit for basic operation. If needed, connect a call monitor for displaying full screen video of all installed cameras in sequence.

Connecting Short-term Device

If any short-term devices shall be installed to the DVR as parts of the unit system, such as USB ThumbDrive® or any USB devices, etc, make sure those devices are connected only after the unit is powered up. The reason is because the DVR can recognize the external devices only after the power-up process is done completely.

2.3 Rear Panel Connections

There are various connectors on the rear panel for the DVR installations. The following shows the detailed description of each connector.

Main Monitor (BNC/ VGA/ Digital Output)

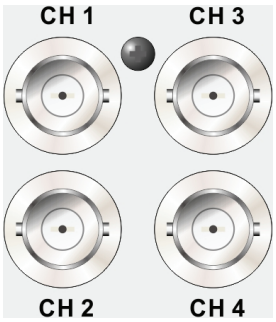
The DVR supports three different types of main monitor: BNC, VGA, or Digital Output. The main monitor displays live image and playback recorded video in full-screen or split-window format. Digital Output connector is optional.

Call Monitor

The BNC call monitor connector allows users to connect the DVR with an optional call monitor. The call monitor is used to display full screen video of all installed cameras in sequence.

Video In

A group of BNC connectors is offered for video input from installed cameras. The number of connectors equals the number of channels.



Note: The DVR will detect video source of CH1 and automatically adjust the system to NTSC or PAL system.

Audio Out – Main & Call (4CH models only)

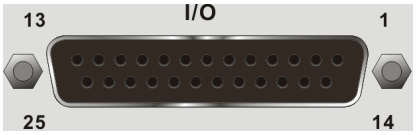
Main & Call Audio Out RCA connectors are provided for connecting the DVR to audio output devices (e.g. amplified speakers). "MAIN AUDIO OUT" will output audio from the main monitor, whereas "CALL AUDIO" will output audio form the call monitor.

Audio In/Out (8HC & 16CH models only)

16CH models provide audio in/out connection via a D-Sub connector. Users can connect audio source devices for each channel and audio output devices for Main/Call monitors. Refer to ***Setup Guide*** for detailed pin definitions for different models.

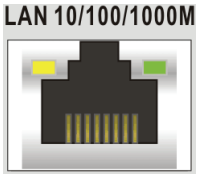
Alarm I/O, RS-485 & Audio In

A D-Sub connector is provided to offer users the flexibility to connect the DVR to Alarm I/O, RS-485 and Audio In devices. Refer to ***Setup Guide*** for detailed pin definitions for different models.



LAN Connector (RJ-45)

The DVR is capable of networking. Once the unit is connected to the LAN network, users can remotely access the unit through the remote software on a PC.



USB Connector (x1)

There is one USB port provided to allow users to connect USB devices, such as USB mouse or USB storage.

e-SATA

Users can connect an e-SATA storage device via this port to expend HDD capacity of the DVR.

RS232

The RS232 communication port is for connection to a POS device.

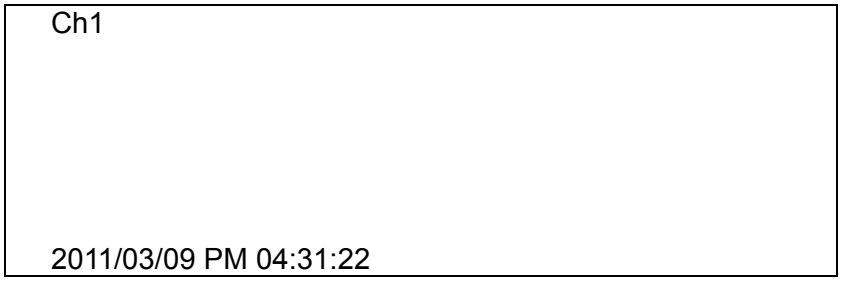
Power Jack

The DVR has a 12V DC power connection jack. Please connect the power adapter shipped with the unit.

3. General System Setup

Before operating the DVR, some general configuration should be setup first. The following subsections will introduce function keys on the front panel and general configuration of the DVR.

The regular displayed OSD information and its displayed positions are shown as following figure. Title of the channel will be displayed on the top-left corner of the window, either in full screen mode or in multiple channel mode. The current operation status and date/time information will be displayed in the status bar at the bottom-left corner of the screen. Move the cursor to any status icon and its description will be displayed. Refer to the ***Setup Guide*** for a list of status bar icons and their descriptions.



3.1 Front Panel Introduction

The front panel controls enable users to control the unit and preset the programmable functions.

3.1.1 LED Definition

The LEDs on the front panel of the DVR are described as follow.

REC LED
The LED blinks while the DVR is recording.

Alarm LED
The LED lights up when an alarm is triggered.

Network LED
The LED lights up when the DVR is connected to a network and blinks when the data is being transferred.

3.1.2 Function Keys

This section describes the functional keys on the front panel of the DVR. Refer to the ***Setup Guide*** for the graphical illustration of functional keys.

Power Key

When the quick shutdown function is enabled, press and hold this key to quick shutdown the DVR. Refer to section **Power Up / Shutdown the DVR** for more information about the setting of quick shutdown function.

CHANNEL

- In both Live and Playback modes, press the CHANNEL key to view the corresponding video in full screen. The number of the CHANNEL keys corresponds to the number of cameras supported by the unit.
- In Dome Control mode, press "1" to access the Set/Go Preset menu.
- In OSD number keyboard, press keys "1" ~ "9" to input number 1~9, and press key "10" to input number 0.

DOME(PTZ)

Press the key to enter dome control mode. Please refer to section **Dome Control** for detailed controlling operation.

MODE

Press repeatedly to select for preferred monitor display format. The available viewing modes includes: full-screen, 4-window (2×2), 9-window (3×3) and 16-window (4×4). Refer to section **Viewing Modes** for detailed information.

SEQ (Sequence)

Press to start automatic sequence display of video from all installed cameras.

MENU

Press this key to enter the OSD setup menu.

COPY

In Playback mode, press COPY to select the start and end time of the export video. Refer to section **Video Export** for detailed information.

CALL

In Live mode, press this button to enter call monitor control mode.

PLAY/STOP

Press this key to switch between live image and playback video.

NOTE: According to record setting, part of the latest video cannot be played back because the video is still saved in the buffer.

FREEZE

- Press FREEZE while viewing live image, the live video will be frozen. The date / time information shown on the monitor will continue updating. Press FREEZE again to return to live mode.
- Press FREEZE while playing the recorded video, the playback video will be paused. Press LEFT / RIGHT to move the recorded video reverse / forward by single step. Press FREEZE again to continue playing video.

SEARCH

- In both Playback and Live mode, press SEARCH to enter the Search menu to search and playback recorded video by date/time or events.
- Press twice to instantly playback the latest recorded videos.

ESC

- Press to cancel or exit from certain mode or OSD setup menu without changing the settings made previously.
- When password protection is switched off, press ESC for five seconds to lock up the system. Press ESC for five seconds again to unlock.

NOTE: Enter the OSD menu and go to <System Setup> → <User Management> to enable or disable the password protection.

Direction Keys

- In Zoom mode, press these keys to move to desired directions.
- In the OSD setup menu, the LEFT/ RIGHT keys are used to move the cursor to previous or next fields. To change the value in the selected field, press UP/ DOWN keys.

ENTER / ZOOM

- In OSD setup menu or selection interface, press this key to make the selection or save settings.
- In live full screen view mode, press this key to view a 2× zoom image. Press it again to exit Zoom mode.

3.2 Enter OSD Setup Menu

The configuration of the DVR can be customized by entering the intuitive Graphical User Interface (GUI) OSD setup menu. Collaborating with a USB mouse, setting up the DVR can be easy as operating on a PC. Press MENU and select an account to login.

The next step is to enter a corresponding password. The preset password for the administrator account "admin" is "1234".

NOTE: It is strongly suggested to change the preset password to prevent unauthorized access to the unit.

An icon displayed at the status bar will show the authority level of the account. Under logout condition, the "Guest" icon will be displayed. When an account is logged in, its authority level number (1~8) will be shown.

Before completely logout, other functions can also be accessed without having to login again. There are two ways to logout: manually logout by pressing ESC key at Live mode, or auto logout when keys are not pressed for 5 minutes at Live/ Menu mode.

3.2.1 User Management

The DVR provides the option to create up to seven sets of usernames and passwords with customized authority, excluding the preset "admin" account. From the Main Menu, select <System Setup> → <User Management> and the menu is as the following:

User Management	
Password Protection	On
Account Setup	ENTER
Permissions Setup	ENTER
Load Default Setting	No

Password Protection

Select <On> to request for username and password for accessing functions listed in Authority Setup menu, or select <Off> to allow free access.

Account Setup

Setup customized account, password, and privilege level in this menu. Note that the account is case sensitive, and password cannot contain the number "0". The privilege level rank from levels 1~8, which level 8 has the highest privilege. Alternatively, select <Disable> to stop using the account.

NOTE: The username and authority level of the preset "admin" account cannot be changed.

Permissions Setup

Setup the allowed authority level for accessing the functions listed in this menu. The items include: Playback/Search, Hidden Camera, Dome Control, Live Operation, Call Control, Export Data, Menu Access, System Setup, Monitor Setup, Camera Setup, Record Setup, Sequence Setup, Event Setup, Database Setup, Configuration, POS Setup and Shutdown. In accordance with users' privilege level defined in <Account Setup>, the authority level here also ranks from levels 1~8, with level 8 as the highest level. Users will be able to access any function that is set to their equivalent level or lower. Alternatively, select <DISABLE> to allow free access.

NOTE: The "Menu Access" cannot be set to <DISABLE>.

When the account does not have authority to access certain functions, an error message will be displayed on the screen.

Load Default Setting

Select <Yes> to load the default setting.

3.3 Power Up / Shutdown the DVR

If the DVR must be shutdown for any reason, please use the proper shut down and power up procedures to avoid damaging the DVR.

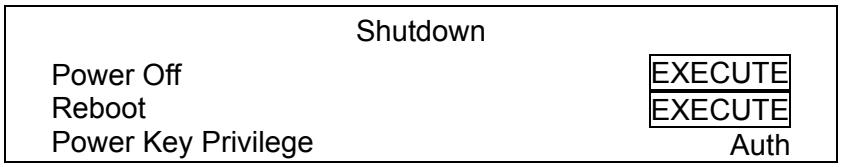
Power Up the Unit

Simply plug in the power adapter that came with the package and the DVR will start to boot.

The color bar and system checking information will be shown on the monitor and then disappear when the unit has been completely powered up.

Restart / Shutdown the Unit

Press MENU and input the username and password that has sufficient authority to access the OSD setup menu. Select <Shutdown> in Main Menu and press ENTER to enter the Shutdown menu, which displays as follows.



<Power Off>

Select this item to shut down the unit. Do not remove the power during shut down until the message "You can safely turn off DVR now!" displays.

<Reboot>

Select this item to reboot the unit. The color bar and system checking information are displayed on the monitor until the unit is completely restarted.

<Power Key Privilege>

According to the setting of this item, users are able to quick shutdown the DVR via long pressing the Power Key. This item defines the action of the power key. The options are <Auth>, <Confirm>, <Direct>, and <Disable>. The following explains each option.

- **Auth:** This will ask users to login with an authorized account, when Password Protection function is enabled. If Password Protection function is disabled, the action will be the same as the next option <Confirm>.

- **Confirm:** When this option is selected, a confirmation message will be shown after long pressed the Power Key. Users can confirm or cancel the quick shutdown function.

- **Direct:** For users who wish to enable the quick shutdown function without any confirmation or login process, select this option and the DVR will automatically shutdown after long pressed the Power Key.

- **Disable:** Select this option to disable the quick shutdown function.

3.3.1 HDD Auto Scan

When the DVR is powering on, HDD auto scan will be initiated if there was previously an unusual power loss or file system error. If by any chance auto scan failed, the HDD will need to be formatted.

NOTE: If users wish to disable the auto scan function, enter the OSD setup menu via an authorized account and access <Database Setup> to set <Repair On Power Loss> to <Off>.

Read the following troubleshooting to finish the auto scanning process.

- **Skip Auto Scan**: During the scanning process, users can press any key to skip the process.
- **Time Expired**: When the scanning process took more than predetermined time (3hrs for 1TB HDD, 6hrs for 2TB HDD, etc), the scanning process is treated as failed and will be automatically terminated. The DVR will reboot.
- **Format HDD**: If the scanning process is failed, users will be prompted to confirm format of the HDD with error. When users confirmed to format the HDD with error, login of an authorized account is required if password protection is enabled. If users select cancel or do not respond within 5 minutes, the HDD with error will be marked as a NG HDD. A NG HDD will not be counted as a part of the DVR's database. It will just stay there doing nothing.
- **Recover NG HDD**: Enter the OSD setup menu via an authorized account and access <Database Setup>. Then select <Internal Disks> and find the NG HDD from the list. Under <Action> column, first select <Format> to format the NG HDD. Then select <Add> to add the formatted HDD to the DVR's database.

NOTE: The above actions will be recorded in the system log data.

3.4 System Date / Time Setting

Users can set the current date, time and other OSD parameters in Date/Time menu (under System Setup menu). The login account should have authority to access the System Setup menu. In OSD setup menu, select <System Setup> and press ENTER, then select <Date/Time> to access the Date/Time menu; the menu displays as follows.

Date/Time	
Date	2011/02/21
Time	PM 10:39:26
Time Zone	OFF
Date/Time Display	ON
Date Display Mode	Y/M/D
Time Display Mode	12 HR
Daylight Saving Time Setup	ENTER
Network Time Protocol Setup	ENTER

3.4.1 Set Date / Time

Set Date / Time

Select <Date> / <Time> and press ENTER to adjust the settings. LEFT / RIGHT keys are used to move the cursor to previous or next field, ENTER is for selecting, and UP / DOWN are used to change the value in the selected field.

NOTE: The new date / time setting applies to record new video. The date and time of previously recorded video will not be changed.

NOTE: If time settings have to be changed in any case, it is strongly recommended to format the HDDs to avoid database corruption.

Date / Time Display

Select <ON> or <OFF> to setup whether to display date/time information on the screen. Press ENTER and use the UP / DOWN keys to change the setting.

Date Display Mode

This function allows users to set the OSD display type of the date. There are three options to select from: <Y/M/D>, <M/D/Y> or <D/M/Y>. "Y" represents "Year", "M" represents "Month" and "D" represents "Day".

Move to the item and press ENTER, the option starts blinking. Use UP / DOWN keys to change the setting.

Time Display Mode

Users can set the time format to <12 HR> or <24 HR>. Use the UP / DOWN keys to change the format.

3.4.2 Daylight Saving Time

Daylight Saving Time

The item is for those people who live in certain regions to observe Daylight Saving Time. Select <ON> to enable, or <OFF> to disable the function.

If the function is disabled, the DST Start / End time and DST Bias will be grayed out and cannot be accessed.

NOTE: If this function is enabled, the date/ time information will be shown on the screen with a DST icon when playing back recorded video or searching video in the event list. "S" indicates summer time and "W" indicates wintertime.

DST Start / End

The items are used to program the daylight saving duration. Use LEFT / RIGHT keys to move the cursor to the next or previous field, UP / DOWN to change the settings in the selected field.

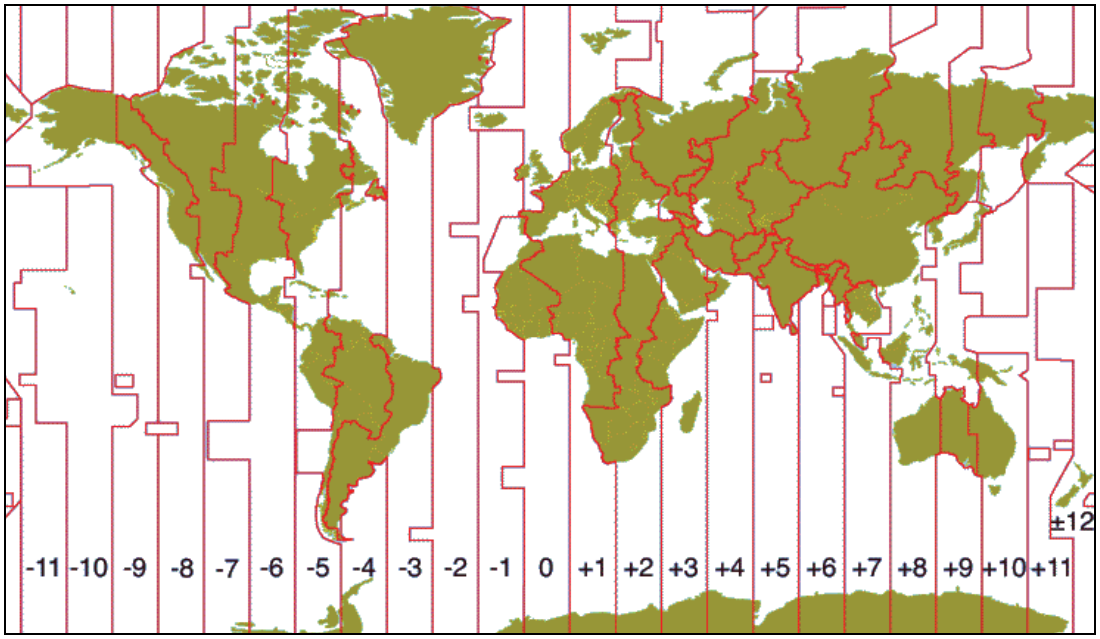
DST Bias

The item allows users to set the amount of time to move forward from the standard time for daylight saving time. The available options are in minutes.

3.4.3 Network Time Protocol Setup

Time Zone

Select <**Time Zone**> to setup the time zone. To find out the correct local time zone, please visit www.greenwichmeantime.com or refer to below figure.



NOTE: The <**Time Zone**> must be set to the correct local time zone or the <**Network Time Protocol Setup**> will not be accessible.

Network Time Protocol Setup

After setup the time zone, <**Network Time Protocol Setup**> will be accessible. Select <**NTP Server**> to setup the time server. The default time server is time.nist.gov, but the users can change to any other time server if preferred. A list of IP addresses of the time servers is listed below.

129.6.15.28	129.6.15.29	132.163.4.101
132.163.4.102	132.163.4.103	128.138.140.44
192.43.244.18	131.107.1.10	69.25.96.13
206.246.118.250	208.184.49.9	64.125.78.85
207.200.81.113	64.236.96.53	68.216.79.113

After the time server is set, set <**Manually Time Sync**> to <Yes> to sync the time. The time sync can also be updated periodically. Set <**Automatically Time Sync**> to <On>, and the time will be automatically synced once an hour.

3.5 Record Schedule / Quality Setting

The Record Setup menu allows users to set recording quality, recording schedules, and other recording parameters. Login with a proper account to access Record Setup menu. In the Main menu, move the cursor to <Record Setup> and press ENTER; the following menu is displayed.

Record Setup	
Record Mode Setup	ENTER
Schedule Setup	ENTER
Preset Config	Best Quality
Per Camera Config	ENTER
ezRecord Setup	ENTER
Data Lifetime Setup	ENTER
Circular Recording	On
Audio Recording	On
Purge Data	ENTER

3.5.1 Record Mode Setup

The Record Mode Setup menu allows users to setup record resolution, etc. The relative record settings, such as preset configuration, will follow the record mode setting. The menu is displayed as the following.

Record Mode Setup	
Record Resolution	720*240
Record Format	H264
Max Rec. PPS	480
CBR/VBR	CBR

- Select record resolution of the video from 720*480, 720*240, and 352*240 for NTSC systems. If the video system is PAL, the options will be 720*576, 720*288, and 352*288.
- Record Format of the video is H.264. It is "read-only".
- Max Rec. PPS will remain constant. Each channel will be 30PPS.
- Set the recording bit rate as CBR (Constant Bit Rate) or VBR (Variable Bit Rate).

It is strongly suggested to use VBR encoding when reliable video quality is the top priority.

NOTE: Since a VBR file does not have a fixed size, the HDD space usage cannot be calculated and thus ezRecord function is not supported for VBR mode. Therefore, if ezRecord is selected as the preset record configuration, the option of this menu item will automatically be set as <CBR>.

3.5.2 Schedule Setup

The Schedule Setup is used to set the day and night time, or weekend recording schedule. Select <Schedule Setup> from the Record Setup menu and press ENTER; the following menu is displayed.

Schedule Setup	
Day Time Start	AM 06:00
Day Time End	PM 06:00
Night Time Start	PM 06:00
Night Time End	AM 06:00
Weekend Schedule	On
Weekend Start	Fri PM 06:00
Weekend End	Mon AM 06:00

- Make appropriate changes of the start time of Day and Night Time using Direction keys.
- Press ENTER to confirm the settings or ESC to cancel.
- If a weekend record is required, select <On> to enable the Weekend Schedule in advance and then set the Weekend Start/End time.
- Press ESC to return to previous page.

3.5.3 Preset Record Configuration

The <Preset Config> is used to select the preset recording quality and frame rate. In normal circumstances, it is strongly recommended to set the preset configuration as <Best Quality>. Below table shows the PPS and picture size under <Best Quality> in Half-D1 mode. Please refer to OSD Setup Manual, section **Preset Record Configuration** for more detailed information.

Halfl-D1 mode (NTSC: 720*240@240PPS; PAL: 720*288@200PPS)			
Normal PPS	**Normal Size**	**Event PPS**	**Event Size**
15 NTSC (12.5 PAL)	10 KB / PIC	30 NTSC (25 PAL)	10 KB / PIC

3.5.4 Per Camera Configuration

This function is used to set the Day / Night / Weekend PPS (Picture per Second) and Quality for each channel. The Preset Configuration must be set to <OFF> for accessing these schedules. The menu is displayed as below.

Per Camera Config			
Cameral Select			CH01
	Day	**Night**	**Weekend**
Normal PPS	30	30	30
Normal Qlty	Mid	Mid	Mid
Event Max PPS	30	30	30
Event Qlty	Best	Best	Best
Event Active	Both	Both	Both

- Firstly, select a Camera for setting its record configuration. The image and recording settings from the selected camera will be displayed on the screen.
- Move the cursor using Direction keys and press ENTER to select an item.
- Change the value using UP / DOWN keys.
- Press ENTER to confirm the settings or ESC to abort.
- Press ESC to return to Record Setup menu.

Please note that the normal/event PPS for each channel cannot exceed 30 for NTSC system, or 25 for PAL system.

3.5.5 Record Event Video Only

If the DVR shall start recording only when alarms are triggered, follow the steps below:

- Enter the OSD setup menu with correct password.
- In the OSD setup menu, select <Record Setup> menu. Move the cursor to the item <Preset Config>, and select <Event only>.

Refer to OSD Setup Manual, section **Preset Record Configuration** for more detailed information.

3.5.6 ezRecord Setup

This item aims to ease the complicated record settings, and to make the setup much easier. Note that the item can be reached only when <ezRecord> is selected as the option for <Preset Config>.

Select <ezRecord Setup> from <Record Setup> and press ENTER, the sub-menu appears as below figure:

ezRecord Setup	
How Many Days To Record	7 Days
Daytime Record	Yes
Night Record	Yes
Weekend Record	Yes
Average Normal PPS	15
Average Normal Quality	Best

Follow these steps to Setup ezRecord:

- Select <How Many Days To Record> and press ENTER, then press UP/DOWN to choose an option. The average normal PPS & Quality will be adjusted automatically. The maximum of days depends of the size of the installed HDD. In other words, the larger the size of the HDD installed, the more days the unit can record.
- Move to <Daytime Record> and press ENTER. This item will determine whether the DVR will record during daytime. If yes, use UP/DOWN to select <Yes> as to enable daytime recording; or select <No> to disable.
- Repeat the same procedures through the 3rd and 4th item, respectively. Note that <Weekend Record> will be inaccessible if <Weekend Schedule> in <Schedule Setup> is set to <No>.
- Select <Average Normal PPS> and press ENTER, then press UP/DOWN to make a choice. The <How Many Days To Record> will be computed automatically.
- Select <Average Normal Quality> and press ENTER, then press UP/DOWN to make a choice. The <How Many Days To Record> will be computed automatically.

NOTE: The current number of connected cameras will affect the recording quality automatically calculated through the <ezRecord Setup>. Therefore, once the number of connected cameras is changed, the <ezRecord Setup> should be reset.

3.5.7 Data Lifetime Setup

Data Lifetime indicates the duration that a video is saved and recallable in the HDD. Only those video recorded within Data Lifetime can be displayed on the screen and played back. The video exceeded Data Lifetime will be hidden and cannot be retrieved for playback.

Data Lifetime Setup	
Data Lifetime Mode	General
Data Lifetime	0 Days
Data Lifetime By Day	ENTER
Data Lifetime By Channel	ENTER

NOTE: To playback a video exceeding the data lifetime, please extend the duration until the recording data / time of the video is included.

Data Lifetime Mode

This item allows the user to choose preferred data lifetime mode. There are three types of data lifetime mode: General, By Day, and By Channel. When a specific mode is selected, further settings of the other two items below will be grayed out and cannot be accessed.

Data Lifetime

When data lifetime mode is set as <General>, this item will be accessible. Press ENTER to select this item and press UP / DOWN keys to set the data lifetime. The value ranges from <1> to <365> days. Alternatively, select <0> to disable this function.

Data Lifetime By Day

When data lifetime mode is set as <By Day>, this item will be accessible. Enter this menu and users can setup data lifetime of each weekday independently. The value ranges from <1> to <365> days. Alternatively, select <0> to disable this function.

Data Lifetime By Channel

When data lifetime mode is set as <By Channel>, this item will be accessible. Enter this menu and users can setup data lifetime of each channel independently. The value ranges from <1> to <365> days. Alternatively, select <0> to disable this function.

3.5.8 Circular Recording

Users can choose to record video in circular mode or in linear mode. If circular mode is selected, the DVR will stores new video into the HDD spaces while overwrite the oldest recorded video. Alternatively, if linear mode is selected, the DVR will stop recording when the HDD is full. The percentage of HDD usage will be displayed at the status bar. Moreover, an "ALMOST FULL" icon will show up at the status bar when HDD usage reached 98%. In the mean time, an internal buzzer will start beeping.

From the Record Setup menu, move the cursor to <Circular Recording> and press ENTER, then select <On> / <Off> using UP / DOWN keys.

3.5.9 Audio Recording

When an audio source device is connected, it will be automatically set to <On>, audio input is recorded and saved with the video. When no audio source device is connected, it will be automatically set to <Off>.

3.5.10 Purge Data

This item is used to delete the Normal or Event recording video. In Record Setup menu, move the cursor to <Purge Data> and press ENTER; the Purge Data menu is displayed.

Purge Data	
Purge All Data	No
Purge All Event Data	No
Purge Event Before	2000/01/01
Start To Purge	No

Purge All Data

The item is used to delete all recorded video from the database. Set this item to <Yes using UP / DOWN keys, and start the deletion by setting <Start To Purge> to <Yes>.

Purge All Event Data

The item is used to delete all event video from database(s). Using UP / DOWN keys to select <Yes> and start the deletion by setting <Start To Purge> to <Yes>.

Purge Event Before

The item is used to delete event video before a specific date. Use LEFT / RIGHT keys to move the cursor to next or previous field, ENTER to select the item and UP / DOWN to adjust the value.

Start To Purge

After the video or data to be deleted are selected, set this item to <Yes> to start the deletion or choose <No> to cancel.

3.6 Event Setting

This menu allows users to determine the DVR's behavior in response to alarm events. In the Main menu, move the cursor to <Event Setup> and press ENTER. The following menu is displayed. Items in the Event Setup menu are described in the following subsections.

Event Setup	
Internal Buzzer	On
Event Icon	On
Email Notice	Off
Email Attachment	Off
Alert Notification Setup	ENTER
Event Full Screen	None
Event Duration	20 Sec
Per Channel Config	ENTER

3.6.1 Internal Buzzer

This item allows users to enable / disable internal buzzer of the DVR. If <On> is selected, the buzzer is activated in response to alarm events. If <Off> is selected, the buzzer is not activated.

3.6.2 Event Icon

This item enables (On) / disables (Off) the display of event icons on the monitor when alarm events occur. The event icons are represented by a character according to the event types respectively. Refer to the following table for association of event icons and event types.

Event Icon	Event Type
A	Alarm in event
M	Motion detection event
L	Video loss event

3.6.3 Email Notice

The item enables (On) / disables (Off) the Email notification of an event. When an alarm event is triggered and <Email Notice> is enabled, an email regarding the alarm event will be sent.

NOTE: In order to send an event notification email successfully, ensure that the DVR is connecting to the internet.

3.6.4 Email Attachment

The function allows the DVR to send out a brief AVI video regarding the triggered event. The total size of the video will be about 2 MB. Select <On> to enable this function; or <Off> to disable it.

NOTE: The video clips of the Email Attachment will ONLY be in *.avi format. Please download the Divx Player from www.divx.com to playback the *.avi files.

3.6.5 Alert Notification Setup

This function allows users to send alert notifications to the CMS software which had been installed to users' computer. For further setup instruction at the CMS side, please refer to the CMS user's manual.

Alert Notification Setup	
Alert Configuration Set	1
Alert Notification	OFF
Alert IP	0.0.0.0 NUM
Alert Port	9999
Alive Interval	120 Sec

3.6.5.1 Alert Configuration Set

<Alert Configuration Set> provides 3 combinations of Alert Notification, IP, Port, and Interval.

3.6.5.2 Alert Notification

4 options are included in this item: <OFF>, <Event>, <Alive>, and <Both>.

<**OFF**>: The Alert Notification is turned off.

<**Event**>: When the alarm is triggered, the DVR will send an alert message to the CMS.

<**Alive**>: The DVR will send an alive message to the CMS every *N* second just to show you that the connection between the DVR and CMS is in effect. The time interval *N* can be adjusted in <Alive Interval>.

<**Both**>: This enables the DVR to send both Event and Alive alert messages to the CMS.

3.6.5.3 Alert IP

The Alert IP must match the IP address of the computer installed the CMS.

3.6.5.4 Alert Port

The ports for DVR and the CMS Alert **MUST** be the same.

3.6.5.5 Alert Interval

Users can define the time interval (1 to 255 seconds) between each alive message.

3.6.6 Event Full Screen

This function allows the DVR to display the alarm channel in full screen size when an alarm is triggered. Select <None> to disable this function; select <Main> to display the alarm channel on Main Monitor when an alarm is triggered; select <Call> to display the alarm channel on Call Monitor; and select <Both> to display the alarm channel on both Main Monitor and Call Monitor.

3.6.7 Event Duration

This item determines the duration of the buzzer and Alarm Out relay function after an alarm is triggered. The available event duration range is from 5 second to 999 seconds.

3.6.8 Per Channel Config

This menu is used to configure the <Video Loss Detect>, <Motion Detect>, <Alarm In> and <Alarm Out> settings for each channel. The menu is displayed as below.

Per Channel Config	
Channel Select	CH01
Video Loss Detect	Off
Motion Detect	Off
Detection Config	ENTER
Alarm In	OFF
Alarm Out	OFF

3.6.8.1 Channel Select

The item is used to select a desired channel for setting the parameters. Move the cursor to <Channel Select> and press ENTER, then select a channel using UP / DOWN keys. Press ENTER again to confirm the selection.

3.6.8.2 Video Loss Detect

This item allows users to enable or disable Video Loss as an alarm event. Select <On> to enable Video Loss alarm events, or <Off> to disable.

3.6.8.3 Motion Detect

This item allows users to enable or disable motion detection function of the DVR. Select <On> to enable Motion Detect alarm events, or <Off> to disable. If motion detection function is enabled, it is required to define motion detection parameters such as detection area and sensitivity settings in <Detection Config>.

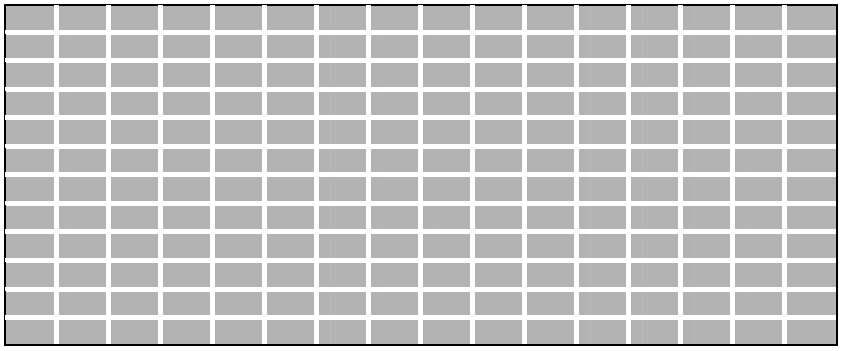
3.6.8.4 Detection Configuration

If motion detection function is enabled, it is required to define the motion detection parameters such as detection area and sensitivity settings. Select a channel for setting the parameters, move the cursor to <Detection Config> and press ENTER. The Detection Configuration menu displays as follows.

Detection Config	
Detected Area Setup	ENTER
Sensitivity	88%
Block Threshold	4

Detected Area Setup

After selected this item, the detected area is displayed as follows. The detection area consists of 192 (16×12) detection grids.



Use the Direction keys to move the cursor and press ENTER to select or de-select a grid. Press MODE to select all of the grids for detection; press MODE again to de-select all of the grids.

Sensitivity

This item is used to set the sensitivity of detection grids for the camera. A greater value indicates more sensitive motion detection. A motion alarm will be triggered once the amount of motion detected exceeds the Threshold value.

Move the cursor to <Sensitivity> and press ENTER, and then use UP/ DOWN keys to adjust the value. The value is increased by 4% increment.

Block Threshold

<Block Threshold> indicates the motion alarm triggered level; select from <1> to <16>. Selecting <1> means the DVR will trigger the alarm when one grid is detected; and selecting <16> means the DVR will trigger the alarm when 16 grids are detected. Move the cursor to <Block Threshold> and press ENTER, and then use UP / DOWN keys to adjust the value.

3.6.8.5 Alarm In

This item allows users to enable/ disable alarm input detection. According to users' application, select <N/O> (Normal Open) or <N/C> (Normal Close) to enable the alarm input detection, or select <OFF> to disable the detection.

If <N/C> is selected without installing any device, an alarm will be triggered and the Event Icon will always display on the monitor until the selection is changed to <N/O> or <OFF>, or when a device is installed.

3.6.8.6 Alarm Out

This item allows users to enable/ disable the alarm output on the selected channel to activate the relay. The signal can be a light or siren to caution an alarm event. Select <ON> to enable the alarm output, or <OFF> to disable.

3.7 POS Setup

The <POS> function provides a connection between the DVR and a Point-of-Sale (POS) device, such as a cash register. With this function, the financial transaction data can be linked to specific camera images and recorded to the DVR. To enable this function, enter OSD setup menu with proper account, and select <POS>. Press Enter and the following OSD setup menu will show up.

POS	
POS Function	On
POS Overlay	Live & PB
Exception POS Setup	ENTER
Input Setup	ENTER

3.7.1 POS Function

This item is used to enable/ disable this function. Select <On>, the text database will be created on the hard disk.

3.7.2 POS Overlay

Users can decide when the POS overlay should be displayed on the monitor. Select <Live> to display the POS overlay in Live mode; select <PB> to display the POS overlay in Playback mode; or select <Live & PB> to display in both modes.

NOTE: POS overlay will only be displayed in full-screen mode.

NOTE: PB overlay is available only under ×1 PB speed.

3.7.3 Exception POS Setup

This sub-menu is used to define the conditions that are to be treated as an "Exception" and thus trigger an action (the function will be implemented later).

Exception POS Setup	
Exception No.	1
Trigger	On
Exception String	NO SALE
By Numerals	Off
Value	
Value (Upper Limit)	

Exception No.

Select a number to set the exception parameters. The total is 16 exceptions.

Trigger

Select <On> to monitor if transactions satisfy exception parameters. Once an exceptions is found, alarm will be triggered.

Exception String

Users can define Exception String. The "Exception String" is case-sensitive. Only exactly matched ones will be marked as exceptions.

By Numerals

"Exception String" must be defined before "By Numerals" takes effect. If "By Numerals" is enabled, only transactions which meet both "Exception String" and "By Numerals" criteria will be marked as exceptions.

The selections are as the following:

<OFF>: The function is disabled.

<Specific>: When the value of a transaction meets a specific value, it will be marked as an exception. That specific value need to be defined in the following sub-setting <Value>.

<Greater Equal Than>: When the value of a transaction is greater then or equal to a certain value, it will be marked as an exception. That specific value need to be defined in the following sub-setting <Value>.

<Less Equal Than>: When the value of a transaction is less than or equal to a certain value, it will be marked as an exception. That specific value need to be defined in the following sub-setting <Value>.

<Inside The Range>: When the value of a transaction is within a certain range, it will be marked as an exception. The range need to be defined in the following sub-setting <Value> and <Value (Upper Limit)>.

<Outside the Range>: When the value of a transaction is beyond a certain range, it will be marked as an exception. The range need to be defined in the following sub-setting <Value> and <Value (Upper Limit)>.

NOTE: Transactions will be marked as exceptions in text database only when: (1) "Exception Strings" and "By Numerals" are set and (2) "Trigger" is <ON>. The data stored before hand will not be marked as exceptions.

3.7.4 Input Setup

This item is used to configure the connection settings of the POS device.

Input Setup	
Input Source	Direct Connected
Camera Selection	1
Text Filter	ASCII
Manual Filter Setup	ENTER
Input Process	Canonical
Text Baud Rate	9600
Text Bits	8
Text Stop	1
Text Parity	None

Input Source

Select the input source of the POS device, either direct connected or connected with the Data Converter.

Camera Selection

Select a camera to display the text overlay.

Text Filter

This item is used to choose the text filter. The supported models for pole display and printer are listed as below.

Pole Display	Printer	POS Machine
Cache Technology VFD-202T	Citizen CBM-1000 II	Acula AQ-812
Citizen C2202	Citizen CT-S300	IBM SurePOS 700
Digipos CD5220	Dell T200	Samsung ER-380M
Emax Pole Display	Epson TM-T88II/TM-T88III/TM-T88IV	Samsung ER-655
Epson DM-D Series	Epson TM-T90	Senor POS
Logic Controls LD9000	Epson TM-930 II	
Logic Controls PD3000	Epson RP-U420	
Logic Controls PD6000	IBM SureMark TF6	
Logic Controls TD3000	IBM SureMark TM6	
Magellan	Ithaca iTherm 280	
Partnertech CD5220	Ithaca POSJet 1000	
Posiflex ICD-2002	POS-X Xr500	
Posiflex PD 302	Samsung SRP350	
Posiflex PD 303	Sensor TP-288	
Posiflex PD-2100	Star TSP100 futurePRNT	
Posiflex PD-2200	Star TSP600	
POS-X Xp8000	Star TSP700	
Scales	Star TSP800	
Sibnet	TPG (Axiohm) A794	
STAR SCD400-PD	WP-520(ESC/POS)	
Soteke VFD2025		
Soteke VFD2029		
TEC		
Toledo 8217		
TYSSO VFD Series		
Ultimate Technology PD1100XL		
Wedderburn DS-770		

Manual Filter Setup

Once enter the Manual Filter Setup menu, users should key in hexadecimal digits. The menu of the item is shown as follows.

Manual Filter Setup	
Header 1	30
Header 2	30

Input Process

If a pole display from a PC based POS device will be used, select <Canonical>. <Non-Canonical> is to be selected when using a Pole Display from a Standalone POS device.

Text Baud Rate, Bit, Stop, Parity

These are used to setup the baud rate, bit, stop, and parity of RS232 which connects the POS device and DVR.

4. Basic Operation

The DVR allows users to access some general operations through the front panel easily. The following sections introduce the general operations of the unit.

4.1 View Live / Playback Video

The general functions in live and playback mode are described in the following sections.

4.1.1 Viewing Modes

The DVR provides users versatile ways of viewing both live and recorded video. Following presents these view formats.

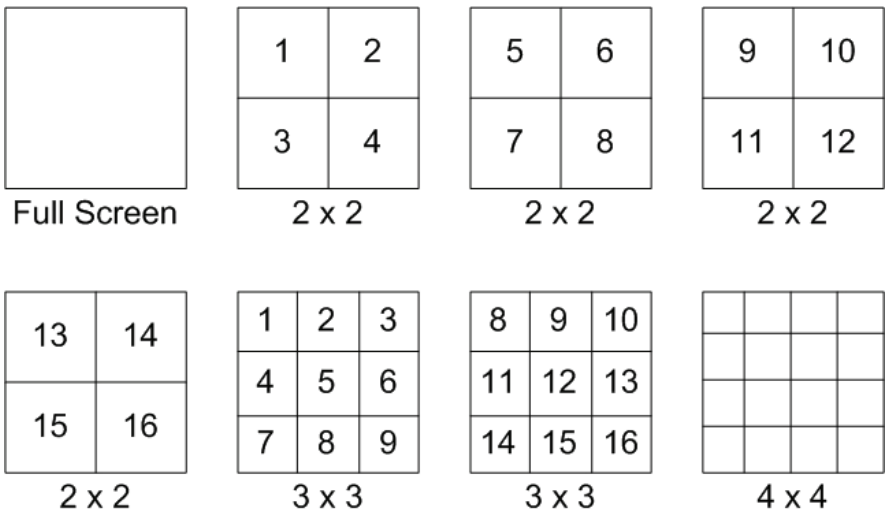
Viewing in Full Screen

Press any CHANNEL key directly to view the corresponding camera image in full screen format.

Viewing in Multi-window

Various multi-window view formats are offered for selection. To switch between available viewing formats, press MODE repeatedly.

The available view formats are illustrated as the following figure.



NOTE: 3x3 viewing mode is only available in 8CH and 16CH models, whereas 4x4 viewing mode is only available in 16CH models.

4.1.2 Digital Zoom

Users are able to view a 2× full screen in live mode. To view the 2× full screen, follow the steps.

- Press any CHANNEL key to view the corresponding camera in full screen.
- Press ENTER to view 2× zoomed screen of the selected camera.
- To view a specific area in 2× zoomed screen, use Direction keys to pan / tilt the zoomed screen.
- Either press ENTER again or ESC to leave the Zoom mode.

4.1.3 View Live Cameras

Users are allowed to view live camera in versatile viewing modes, including full-screen, 2×2, 3x3 and 4×4. The general operation under live mode is described as follows.

Freeze Live Image

Press FREEZE while viewing live image, the image pauses but the date / time information does not, and the system clock continues running.

Press FREEZE to pause the live image; press FREEZE again to resume the live camera view.

4.1.4 View Recorded Video

To view recorded video, users can press PLAY key directly. When press the PLAY key, the unit starts to continue playing back the recorded video from the suspended point of record. If it is the first time to use the PLAY key, the unit will playback from the very beginning of the record. Alternatively, users can select records from the Search menu to play specific video. Refer to section **Searching Recorded Video** for more information.

NOTE: When playing back videos with mass motion recorded in D1 mode (resolution=720x480), press SEQ key to switch on "deflicker function" to avoid gleaming of images. Press SEQ again to switch "deflicker off" and the image will return to real D1 resolution.

The Forward or Reverse speed indicator will be shown on the bottom-left corner of the screen, when in the playback mode.

The general operations in playback mode are described as follows.

Key Usage in Playback

The key usage is slightly different in playback mode. Following is the key usage found in playback mode.

- **LEFT** (Reverse Playback): The key is used to reverse the recorded video while the unit is playing back. Press the key repeatedly to increase the speed of reverse playback by 1×, 2×, 4×, 8×, 16×, or 32×.

- **RIGHT** (Forward Playback): The key is used to play the recorded video fast forward. Press the key repeatedly to increase the speed of forward playback by 1×, 2×, 4×, 8×, 16×, or 32×.

- **FREEZE:** Press FREEZE to pause the playback video. When the recorded video is paused, press LEFT / RIGHT to resume playback video single step reverse / forward, respectively. Press FREEZE again to continue playing video.

- **PLAY:** Press it to start playing back video, exit current mode, or stop playing back video and return to live mode.

Pause Playback and Single Step Forward

To pause and resume recorded video, follow these steps.

- Press any CHANNEL key to view the corresponding camera in full screen.
- Press FREEZE to pause the current playback image.
- Press LEFT / RIGHT Direction keys to move the video single step reverse / forward. Press and hold LEFT / RIGHT keys to repeatedly reverse / forward the video single step.
- Press FREEZE again to resume the playback operation.

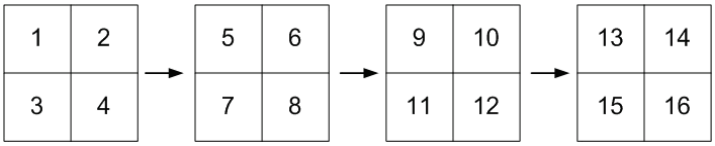
4.2 Sequence

This section introduces the way to view sequence mode with both Main Monitor and Call Monitor, if connected. Sequence function can avoid manual backtracking and provides more flexibility while monitoring surveillance.

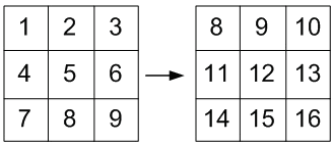
4.2.1 Sequence with Main Monitor

Automatic sequence function can be observed in any view mode. Select certain view format and press SEQ to toggle the automatic sequence; press ESC to stop sequencing. The figure below displays the 4-camera and 9-camera sequencing view modes.

4-camera:



9-camera:



(for 16CH models only)

4.2.2 Sequence with Call Monitor

Users are allowed to use the DVR front panel to control a call monitor display without having to access the Main menu. Two viewing modes can be displayed on call monitor: Sequence display and Single camera display. To program the call monitor sequence, see OSD Setup Manual, section **Sequence Setup**.

Follow the steps to control the call monitor.

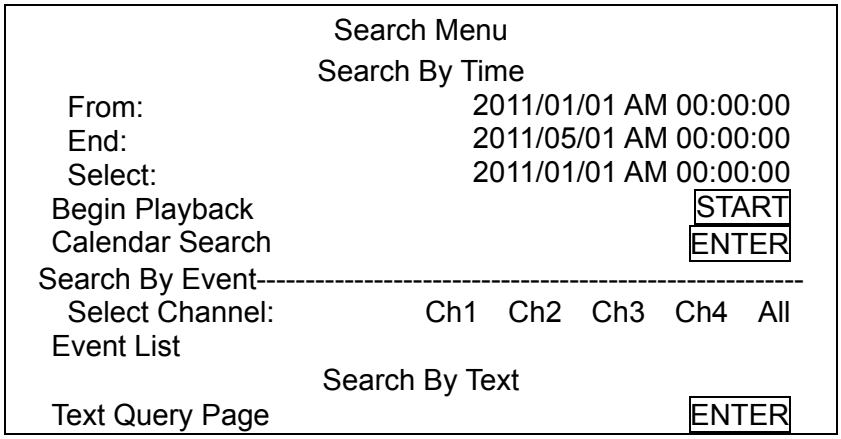
- Press the CALL key on the front panel to enter Call Monitor Control mode. The "Call Mode" icon will be shown in the status bar.

Press 1-16 Key To Select Channel Press SEQ To Enable Sequence

- Press CHANNEL key to display the associated camera on call monitor.
- Alternatively, press SEQ repeatedly to display the sequence of cameras previously programmed in Call Monitor Schedule menu.
- Press ESC to return the front panel to Main Monitor Control mode.

4.3 Search Recorded Video

The DVR is capable of searching and playing back recorded video by date / time, events, or text. To search by time, select a specific date and time of the wanted video or enter Calendar Search. To search by event, select channels to display the event list. In Live or Playback mode, press SEARCH to enter the Search menu.



NOTE: "Search By Text" only functions when a POS machine is connected and text data is stored.

4.3.1 Search by Time

Follow the steps to search video by date and time.

- Press SEARCH to enter the Search menu.
- Move the cursor to "From" and press ENTER will start playing recorded video from the specified "From" time.
- Move the cursor to "End" and press ENTER will start playing recorded video from the specified "End" time.
- Move the cursor to "Select" and press LEFT/RIGHT keys to choose date/ time. Press ENTER and adjust the values by UP/DOWN keys.
- Press ENTER to confirm the settings or ESC to abort.
- Move the cursor to <Begin Playback> and press ENTER to start playing back the selected video.
- Press PLAY again to return to live video.

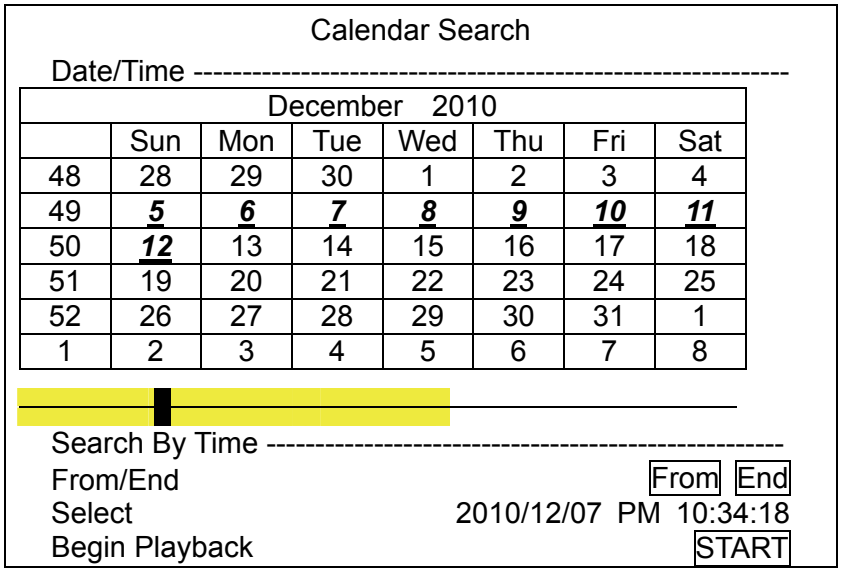
NOTE: If there is no available recorded video that matches the specified time and date, the unit starts playback from the next available video.

NOTE: The date/time information will be shown on the screen with a DST icon if the Daylight Saving Time function is enabled. "S" indicates summer time and "W" indicates winter time.

4.3.2 Calendar Search

Follow the steps below to search recorded video via Calendar Search.

- Press SEARCH button to enter the Search menu.
- Move the cursor to <Calendar Search> and press ENTER. A calendar will be shown as below.


Calendar Search
Date/Time ----------
December 2010
Sun Mon Tue Wed Thu Fri Sat
48 28 29 30 1 2 3 4
49 5 6 7 8 9 10 11
50 12 13 14 15 16 17 18
51 19 20 21 22 23 24 25
52 26 27 28 29 30 31 1
1 2 3 4 5 6 7 8
Search By Time ----------
From/End From End
Select 2010/12/07 PM 10:34:18
Begin Playback START

- Move the cursor to year/ month and press ENTER. Then press UP/DOWN keys to adjust the value and press ENTER again to confirm.
- Move the cursor and press ENTER to select any date shown in bold and underlined font. The bar below the calendar will change according to the recorded data of the selected date.
- Then select preferred time from the time bar. Alternatively, move the cursor to the time shown at the bottom. Press ENTER and adjust the values of hour/ minute/ second via UP/DOWN keys.
- The <From> and <End> buttons allows users to playback video from the beginning or end of the database.
- Note that the time blocks highlighted in red represent events occurred.
- Select <Begin Playback> and press ENTER to start playing back selected video.

4.3.3 Search by Event

"Event List" allows users to search wanted video by event. The Event List is displayed as below figure:

Event List

First Page

Date	Time	Ch.	Type
2011/03/17	11:26:50	2	Motion
2011/03/17	09:53:03	5	Alarm
2011/03/16	16:14:42	3	Alarm
2011/03/15	03:45:31	1	Motion
2011/03/12	22:27:56	1	Alarm
2011/03/12	10:09:29	7	Motion
2011/03/11	12:18:20	6	Motion
2011/03/10	05:16:00	4	Alarm
2011/03/08	17:11:37	2	Motion
2011/03/08	16:29:10	8	Motion
2011/03/08	03:22:17	2	Alarm

The list displays events by date, time, triggered camera and alarm type. As some events are deleted, others are displayed. The latest recorded event video will be listed on the top.

Follow these steps to search event video through Event List:

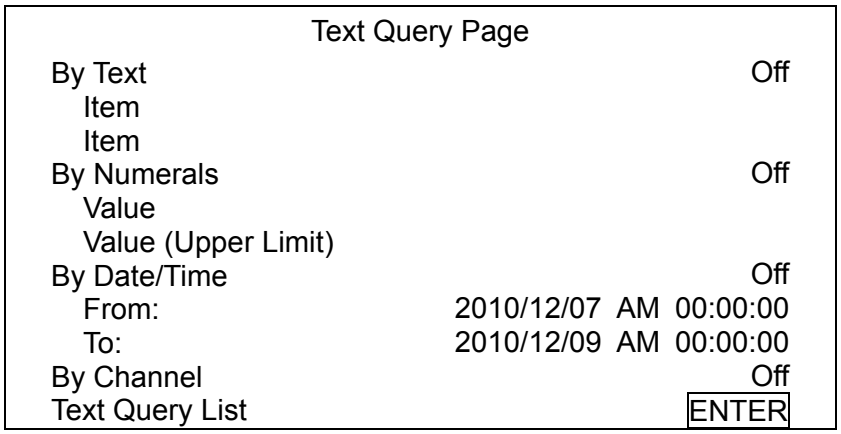
- Press SEARCH to enter the Search menu.
- To search event video that has been recorded on a specific camera, use LEFT / RIGHT to move the cursor and press ENTER to select or de-select a channel.
- Move the cursor to <Event List> and press ENTER to list the event video of the selected channels. The Event List displays.
- To exit the event list, press ESC.

Follow the steps to playback video from Event List.

- Press and hold UP / DOWN to scroll through the Event List.
- Press ENTER to play back the selected event record.
- Press PLAY to return to live mode.

4.3.4 Search by Text

When a POS device is connected to the DVR, users can search for videos with text data. The "Text Query Page" is displayed as below:



There are three ways to search: by text, by numerals, or by text and numerals. In the mean time, date/time and/or channel can be specified to narrow down range, thus the search will be faster. Refer to below for search options.

By Text:

- **Exception:** Search for video with data containing the exception string set in the OSD setup menu.
- **OR:** Enter two sets of word strings. Search for videos with data containing EITHER ONE of the word strings.
- **AND:** Enter two sets of word strings. Search for videos with data containing BOTH of the word strings.
- **Specific:** Specify one set of word string. Search for videos with data containing the specific word string.

By Numerals:

- **Outside The Range:** Enter two numbers to specify a range. Search for videos with data containing number(s) out of the range.
- **Inside The Range:** Enter two numbers to specify a range. Search for videos with data containing number(s) within the range.
- **Less Equal Than:** Enter one number. Search for videos with data containing number(s) less than or equal to the specific number.
- **Greater Equal Than:** Enter one number. Search for videos with data containing number(s) greater than or equal to the specific number.
- **Specific:** Specify a number. Search for videos with data containing the specific number.

4.4 Video Export

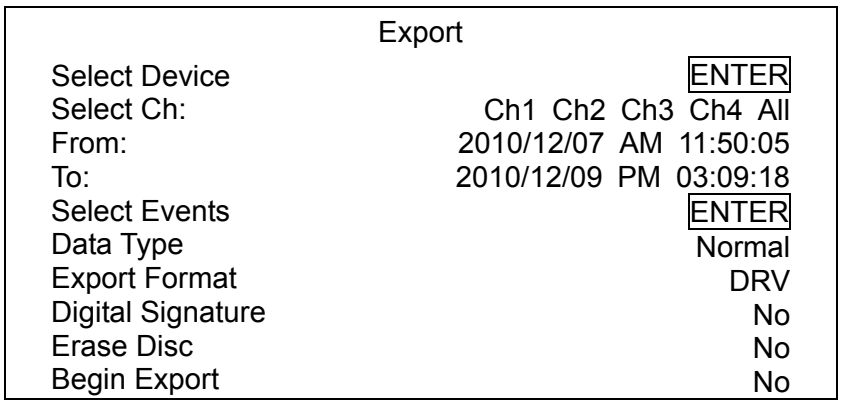
The following sections will show how to export video through the OSD setup menu and through the hot keys on the front panel, respectively. Note that the system log will keep records of all video exportations, including duration, start time, and end time.

4.4.1 Export from OSD Setup Menu

The Video Export menu enables only the accounts with proper authority to export recorded video with digital signature to a USB storage device or a DVD+RW drive. Login with an authorized account to export video.

The exported video will be named by the exporting date and time, and classified by event type. Each recorded video will be exported into four files if digital signature is required, including *.gpg, *.avi (or *.drv), *.sig and readme.txt.

Make sure an external storage device is available and connected to the appropriate port for video export. From the Main menu, select <Export> and press ENTER. The menu is displayed as below.



4.4.1.1 Select the External Device

The available external devices for exporting video will be listed by name and free size in Select Device menu. The Select Device menu displays as follows.

Select Device		
Device Name	Available	Sel
xxx-xxx-x-x-xx	256 MB	No
xx-xxx-xx-xxxx	1.5 GB	No

The DVR only supports EXT3 file system. If an external HDD will be connected to the unit, ensure the format of the HDD is EXT3.

Device Name

The item shows the name of the available device.

Available

The item shows the free space of the available device.

Select

Set the item to <Yes> to set it as an exporting destination, or <No> to cancel.

4.4.1.2 Select Video for Exporting

Select video from desired channel(s) with specific date / time and/or event(s), and set the item <Begin Export> to <Yes> to start exporting. Following are the items for selecting video.

Select Channel

Select the channel to export. Move the cursor to the desired channel using LEFT / RIGHT keys, select or de-select a channel by pressing ENTER.

From / To Time

The items are used to set the time which data export begins and ends. Move the cursor using LEFT / RIGHT keys, and press ENTER to select the date / time items; adjust the selected date and time value by UP / DOWN keys.

Select Events

Select this item to display the event list. Move the cursor to scroll through the event list and press ENTER to select event(s) to be exported.

Data Type

The item is used to select exporting video type. The options are <Normal> (export normal video only), <Event> (export event video only) and <Both> (export both normal and event video).

Export Format

This item is for selecting exporting video format. The options are <DRV>, <AVI>, and <Original>. The DRV and AVI files are compressed video files while the original files are raw data of the unit's recorded video.

The DRV and original files can only be played back with the remote monitoring software and DVR**Player**, and multiple cameras video can be played back from one file. The AVI files can be played back with Windows Media Player. Note that if multiple channels are exported for AVI files, each channel is exported to a separate file.

4.4.1.3 Digital Signature

Users can export video clip with or without a digital signature. Set this item to <Yes> to export with the signature file, or <No> to export without it.

Each recorded video with digital signature will be exported into four files, including *.gpg, *.avi (or *.drv), *.sig and readme.txt. The *.gpg file name is as the last eight MAC (Media Access Control) address of the unit.

Make sure that an external storage device, such as a USB Hard Drive or USB ThumbDrive, is available and connected to the appropriate port for export.

For more information on verifying digital signature, see appendix **DVR Player** in the OSD Setup Manual.

4.4.1.4 Erase Disc

This function is used to remove data found on a DVD+RW disk prior to exporting new information to the drive. Select <Yes> and press ENTER to start deleting data.

4.4.2 Quick Video Export through Front Panel

Through front panel control, the DVR allows users to easily export wanted video as *.drv file with the built-in DVD+RW or to an external device, such as a USB ThumbDrive, and the exported video will be saved as *.drv file.

If the video is to be exported to an external device, make sure the device is connected to the DVR unit and the port has been set appropriately for video export.

NOTE: Once an external device has been connected to the DVR, the device has priority over the built-in DVD+RW. That means the video will be exported to the external device instead of the built-in DVD+RW.

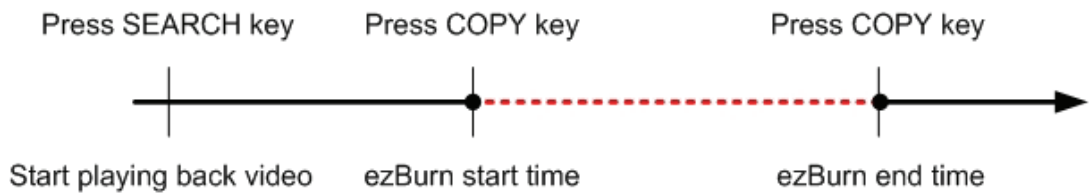
Depending on the size of video, the exporting process may take about 10 minutes to 1 hour.

4.4.2.1 ezBurn Introduction

Built with the ezBurn technology, ezBurn function provides users the easier way to export desired video with built-in DVD+RW or to an external device, such as an USB ThumbDrive.

TWO keys (SEARCH and COPY) and THREE touches are all what's needed for completing the export. The entire exporting process will be done through the front panel, without needing to enter the OSD setup menu.

The ezBurn exporting process is illustrated as below figure:



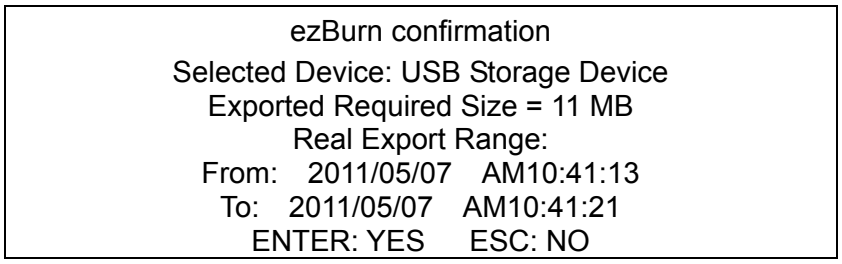
The entire process is described step by step in the following sections.

NOTE: The file exported using ezBurn will be in .drv file format, and it can only be played using the remote player software.

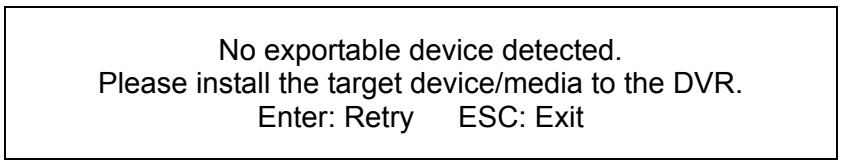
4.4.2 Export Normal Video

To Export normal video to external device, follow these step:

- Press SEARCH and play wanted normal video by entering date and time. Note if the screen is showing in multiple channel mode, please make sure there is no window displaying in Live mode, or the export will not work.
- After entering playback mode, play the video and press COPY once to mark the starting point of the export video. The playback continues.
- Press COPY again to mark the ending point of the export video. Then the "ezBurn" window will display as below figure. The information shown on the window is "read only".



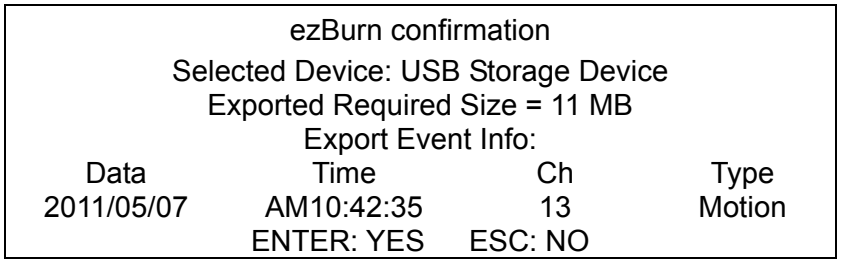
- Press ENTER to start the export; or, press ESC to abort.
- If there is no any exportable device connected to the DVR unit, then a warning message will be shown on the screen, as below figure:



4.4.3 Export Event Video

To export event video, follow these steps:

- Press SEARCH and play wanted event video. To play event video, refer to section **Searching Recorded Video**.
- After entering the playback mode, press COPY. The "ezBurn" window will display as below figure. The information shown is "read only".


ezBurn confirmation
Selected Device: USB Storage Device
Exported Required Size = 11 MB
Export Event Info:
Data Time Ch Type
2011/05/07 AM10:42:35 13 Motion
ENTER: YES ESC: NO

- If there is no any exportable device connected to the DVR unit, a warning message will be shown on the screen
- Press ENTER to start the export the whole event video to the connected device; or, press ESC to abort.

4.5 Dome Control

The DVR allows users to control a dome camera by the front panel. In Live mode, users can press CHANNEL key to display the desired dome camera in full screen. To enter Dome Control mode, press the DOME key. To exit Dome Control mode and return to live mode, press ESC or DOME.

4.5.1 Dome Connection

Follow the steps to install dome cameras.

- See ***Setup Guide*** for RS-485 port pin definition.
- Connect the R+, R- terminals on the dome camera to the D+, D- terminals on the RS-485 port by RS-485 cable respectively. Refer to the connection figure illustrated in ***Setup Guide***.

4.5.2 Dome Protocol Setup

The Dome Protocol item lists the available dome protocols for communicating with dome cameras connected to the DVR. From the Main menu, select <Camera Setup> and press ENTER. The following menu is displayed.

Camera Setup	
Analog Camera Select	CH01
Dome Protocol	None
Dome ID	0
Camera Name	CH1
Hidden	No
Brightness	0
Contrast	0
Saturation	0
Hue	0

To configure dome protocol, select a camera first and set the communications protocol associated with dome camera using the Direction keys and ENTER.

NOTE: The settings become effective after saving the changes and exiting from the menu.

4.5.3 RS485 Setup

The DVR controls the domes via RS-485 communication protocol. The RS-485 parameters in the DVR must be set to the same parameters set in dome camera.

Users are allowed to change the RS-485 settings of the DVR. Select <System Setup> in Main menu, then select <RS485 Setup> from the System Setup menu and press ENTER. The following menu is displayed.

RS485 Setup	
Unit ID	224
Baud Rate	9600
Bits	8
Stop	1
Parity	None

The ID number must match the ID address set by the dome. The Unit ID is in the range of 1 to 255. Note that there cannot be any two devices on the same bus given the same ID address, or a conflict may occur.

NOTE: The settings become effective after saving the changes and exiting from the menu.

4.5.4 Dome Controlling Buttons

After pressed DOME to enter Dome Control mode, a dome control panel will be displayed. The controlling buttons are: Iris Close/Open, Focus Far/Near, Zoom Out/In, Preset, Live, Pan/Tilt Speed, Direction buttons, and Auto Focus. The functions are described as below.

Iris Close

Click on it to close the Iris on the dome camera.

Iris Open

Click on it to open the Iris on the dome camera.

Focus Far

Click on it to focus the lens of selected dome camera at a farther point.

Focus Near

Click on it to focus the lens of selected dome camera at a nearer point.

Zoom Out

Click on it to zoom out the lens of selected dome camera. This function enables users to shrink the current image and a larger viewing area can be displayed.

Zoom In

Click on it to zoom in the lens of selected dome camera. This function enables users to enlarge a certain area.

Preset

This key is used to enter the Dome Preset menu to set up certain position as a preset and go to the predetermined preset positions for viewing.

Live

Click on it to exit Dome Control mode and return to live full-screen viewing mode.

Pan/Tilt Speed

Users can select preferred pan/tilt speed.

Direction Buttons

Click on the buttons to pan and tilt the lens of selected dome camera.

Auto Focus

Click on this button to automatically adjust focus of the dome camera.

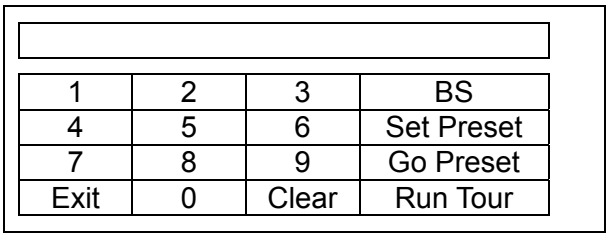
The front panel keys can also perform the functions listed above. Please refer to ***Setup Guide*** for the graphical illustration of functional keys.

4.5.5 Set Preset Points

The DVR allows users to set preset positions. The amount of preset points depends on the dome manufacturer.

Follow the steps to set preset points.

- Press a Channel key to view the corresponding camera in full-screen.
- Then press DOME to enter Dome Control mode. The dome control panel will be displayed.
- Use Direction keys to pan/tilt the dome camera to desired position.
- Click <Preset> on the dome control panel or press CH1 key to access the Set/Go Preset function. A numeral keyboard will be displayed as below.



- Input a desired preset number.
- Click on the <Set Preset> button to save the position. Now the preset position is set and ready to be called.

4.5.6 Call Preset Points

Follow the steps to call preset points.

- Press a Channel key to view the corresponding camera in full-screen.
- Then press DOME to enter Dome Control mode. The dome control panel will be displayed.
- Click <Preset> on the dome control panel or press CH1 key to access the Set/Go Preset function. A numeral keyboard will be displayed.
- Input a desired preset number.
- Click on the <Go Preset> button to call the preset point. Then the selected dome camera will rotate to the preset position automatically.

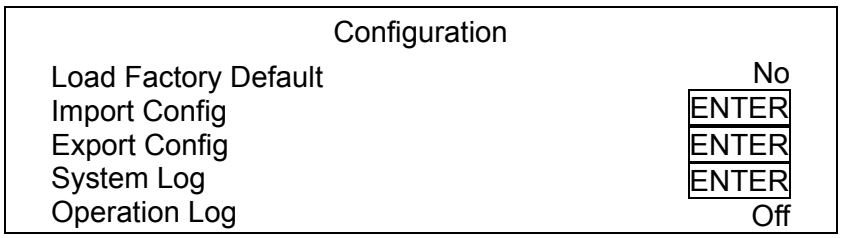
4.5.7 Run Dome Camera Tour

Users can also display dome camera tour setup at the dome camera side. Follow the steps to run display of dome camera tour.

- Press a Channel key to view the corresponding camera in full-screen.
- Then press DOME to enter Dome Control mode. The dome control panel will be displayed.
- Click <Preset> on the dome control panel or press CH1 key to access the Set/Go Preset function. A numeral keyboard will be displayed.
- Click on the <Run Tour> button to run display of dome camera tour.
- Press any Direction keys to end the display of dome camera tour.

4.6 System Log Exportation

In the Configuration setup menu, select <System Log> and a list of system logs will be displayed on the screen. Users can export the system log as a data file to an external storage device. Connect a USB storage device and press COPY to export the system log file to the USB storage device. Note that in the mean time, a digital signature file will also be exported.



Also under the Configuration setup menu, set <Operation Log> to <On> and operation logs will start to be recorded in the system log. Alternatively, set to <Off> and operation logs will not be part of the system log.

5. Remote Monitoring Software

The remote monitoring software is a remote browser-based software application designed to operate with the DVR products. Using the software, users are allowed to view live and recorded video, and configure the DVRs remotely via a LAN, WAN or Internet on a personal computer.

The connected PC will automatically download the remote monitoring software plug-ins from the DVR when the DVR is connected by entering its IP address in the address bar on the browser.

Due to the setting items are similar to those listed in the DVR's OSD setup menu, please refer to the sections above for setting configuration of the remote monitoring software.

The tasks can be performed with the remote monitoring software are listed below:

- Remote viewing of live/ recorded video
- Remote setup of the DVR
- Remote control of dome cameras
- Alarm notification from the DVR
- Up to three connections to one DVR using the remote monitoring software, including the preset "admin" and two other accounts

5.1 Remote Monitoring System Requirements

Items	Minimum Requirements
Personal Computer	**Minimum:** Intel® Pentium® M CPU 1.40GHz RAM 512 MB
	Recommended: Intel® Core™2 Quad CPU Q6600 @ 2.4GHZ RAM 2 GB
Hard Disk Drive	Requires 20 MB for software installation
Operating System	Windows XP, Windows Vista, and Windows 7
Web Browser	Microsoft Internet Explorer version 6.0 or above
Monitor Resolution	Minimum 1024 x 768 with 16-bit color
Network Card	10Base-T (10 Mbps) or 100Base-TX (100 Mbps) operation; must match the network configuration

5.2 Installation of Software

Refer to the following description to install the remote monitoring software.

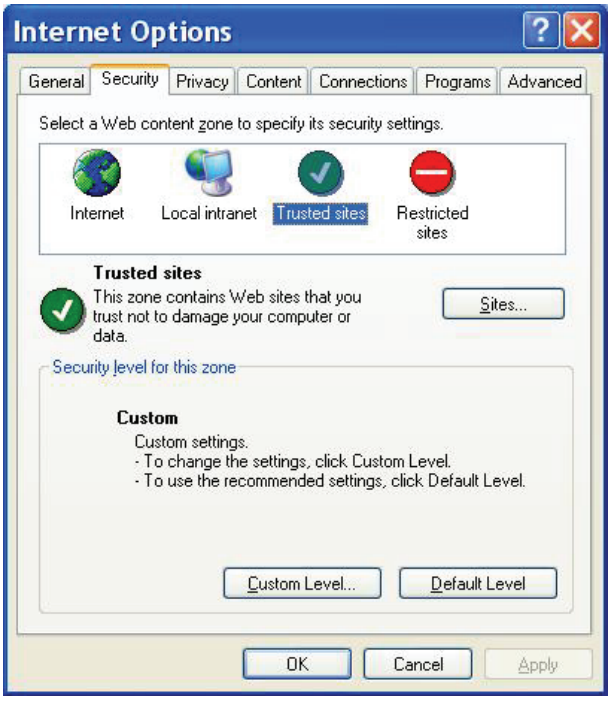
5.2.1 Change Internet Settings

The PC operating with the remote monitoring software should be set to accept ActiveX plug-ins. Please follow the steps to set the Internet security settings appropriately.

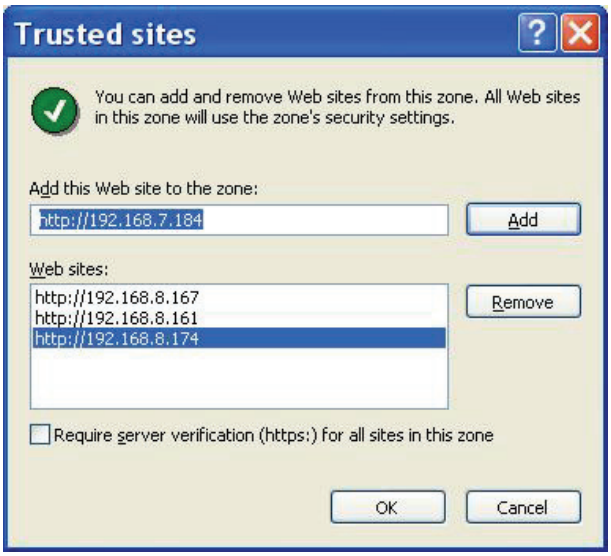
- Before operating the remote monitoring software, please check the IP address of the DVR. To check the IP address, press MENU key on the unit and enter password to access OSD setup menu. Select <System Setup>, <Network Setup>, then <LAN Setup> to check the IP.
- Start the IE; it can be started either by clicking on the desktop icon, or by using the Start menu to access it.

NOTE: Windows IE provides the ActiveX component that is required when using the remote monitoring software.

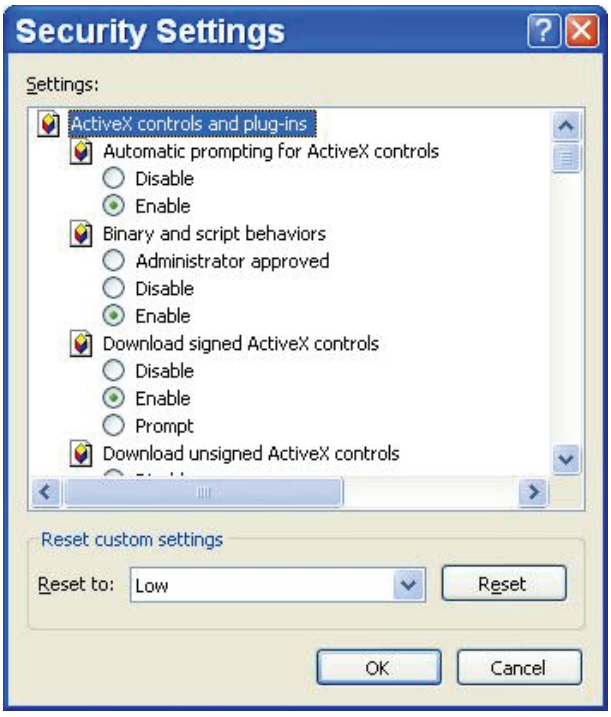
- Select <Tools> from the main menu of the browser, then <Internet Options>, and then click the <Security> tab.
- Select <Trusted sites> and click <Sites> to specify its security setting.



- Uncheck "Require server verification (https:) for all sites in this zone". Type the IP address of the unit in field and click <Add> to add this web site to the zone.



- Click <OK> to confirm the setting and close Trusted sites dialog.
- In the Security Level area, click <Custom Level>. The Security Settings screen is displayed.



- Under <ActiveX controls and plug-ins>, set all items to <Enable> or <Prompt>.
- Click <OK> to apply the setting and close the <Security Settings> screen.
- Click <OK> to close Internet Options dialog.

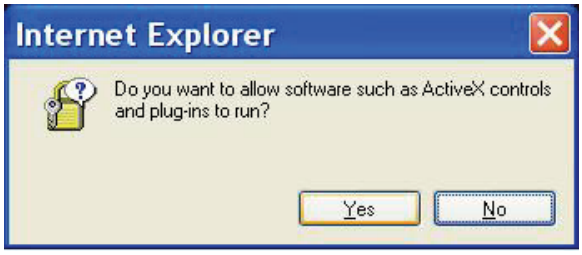
Now the installation can continue to the next step.

5.2.2 Install the Remote Monitoring Software

Start the browser to initiate the installation of the remote monitoring software on the PC. The IP address of the DVR can be saved as a Favorites item in the web browser to enable easy access in the future.

- Start the IE; it can be started either by clicking on the desktop icon, or by using the Start menu to access it.
- Enter the IP address of the DVR in the address bar at the top of the browser.
- The ActiveX controls and plug-ins dialog will show twice for confirmation; click <Yes> to accept ActiveX plug-ins. The remote monitoring software plug-ins will be downloaded and installed on the PC automatically when the connection is successfully made.

NOTE: Do not enter any leading "0" characters in the address, for example, "192.068.080.006" should be entered as "192.68.80.6". If the default trigger port 80 is changed into another one, take port 81 for example, the IP address should be entered as "192.68.80.6:81".



- A version check starts to verify whether the remote monitoring software was installed already, and also check if the version is the same as that stored in that particular DVR. This process may take up to 30 seconds.
- When the software is completely downloaded and installed, the Login Screen is now displayed.

Enter Network Password
This secure Web Site (at 192.168.7.184) requires you to log on.
Please type the User Name and Password that you use for DVR.
User Name
user
Password
Save this password in your password list
OK
Cancel

5.2.2.1 Login / Logout

Login using the same accounts setup in the DVR. The authority is also the same as setup in the DVR.

One preset account "admin" and up to two other accounts can access a DVR at the same time. Nevertheless, if the "admin" account is currently accessing the unit's OSD setup menu via front panel of the unit, then the "admin" account at the remote monitoring site cannot change the settings at the same time. The "admin" account of the DVR has priority.

Enter Network Password
This secure Web Site (at 192.168.7.184) requires you to log on.
Please type the User Name and Password that you use for DVR.
User Name
user
Password
****
Save this password in your password list
OK
Cancel

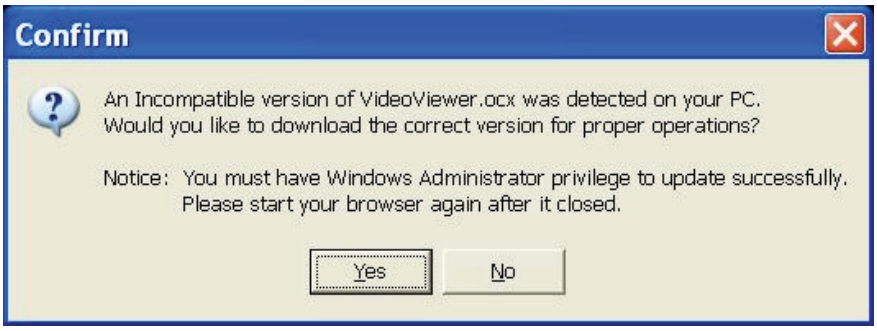
The following steps demonstrate procedures to view video from remote unit:

- Start the remote monitoring software by entering the IP Address of the DVR in the Address bar of the browser. Alternatively, click on the Favorite entry for the unit (if the IP address of the unit has been set).
- Enter the Username and password. The login username and password can be saved to ease future login. The default username and password is **admin** / **1234**.
- Click <OK> to login to the DVR. The process may take a few seconds.
- If the connection is made successfully, the main window will display live video of the attached cameras.

If the IE browser is closed, the remote system is logout and disconnected from the DVR at the same time.

5.2.2.2 Software Upgrades

If a new version of the remote monitoring software is available on the DVR, upgrade will be prompted while accessing the unit. Follow the steps to upgrade the software.


Confirm
An Incompatible version of VideoViewer.ocx was detected on your PC.
Would you like to download the correct version for proper operations?
Notice: You must have Windows Administrator privilege to update successfully.
Please start your browser again after it closed.
Yes
No

- The message as the above figure will be prompted. Click <Yes> to accept version upgrade.
- Start the IE again and enter the IP address of the DVR in the Address bar of the browser; or if the unit address is set as a Favorite site, click the Favorites entry for the unit.
- When the software is completely downloaded and installed, the Login Screen will be displayed.

5.3 Basic Operation

When a DVR is successfully connected, the main window of the remote monitoring software will be displayed. Please refer to the ***Setup Guide*** for the graphical illustration of functional items.

The functions on the remote monitoring software will be described in the following sections.

5.3.1 View Live Video

View live video from the cameras attached to the DVR by clicking <Live> button on the main window toolbar. Choose desired display mode – full-screen, 2x2 windows, 3x3 windows, and 4x4 windows – after the live images of the DVR are displayed on the main window. When a dome camera is connected and viewed in single channel full-screen mode, the dome camera control operation can be accessed. To choose desired display mode and to operate dome camera control, refer to the following sections.

5.3.1.1 Select Display Mode

Choose the number of windows to be displayed on the main window. Click one of the display buttons in MODE section. Available selections are 4, 9 and 16 camera displays. To view certain window in full screen, either double-click on the wanted window, or click on the corresponding CAMERA button.

5.3.1.2 Operate Cameras with Dome Control

The remote monitoring software allows users to control and configure a dome camera remotely.

Click on any CAMERA button displayed with a dome icon to view the camera in full screen. The Dome Control Panel will be displayed on the main window. The items on the dome control panel are described as follows.

Set Preset (•)

Set Preset is used to set up preset positions. The remote monitoring software allows its user to set up to 255 preset positions according to the allowance of the supported dome cameras.

Use Direction buttons to move dome camera to an appropriate position, and then click the button and choose wanted number from the pull-down list. The preset position is named as the selected number.

Go Preset (•←)

Go Preset is used to call the camera preset point, which was set up with the set preset point function. Click and choose a number to call the preset point for viewing.

Auto Focus (A.F.)

Click on it and the focus of the camera will be automatically adjusted to show a clearer image.

Dome ID (ID)

Click for changing the dome ID and protocol. Proper authority is required to access this function.

Focus +/−

Use these buttons to adjust the camera lens to focus on objects for a clear view. Click on <Focus +> to focus near or <Focus −> to focus far.

Iris +/−

This item is used to open and close the iris to let more or less light into the camera. Click on <Iris +> to open iris or <Iris −> to close iris.

Zoom +/−

Users are allowed to zoom-in or zoom-out using the adjusting buttons. Zoom-in to enlarge a certain area and zoom-out to view more area.

Direction Button

This button is used to pan and/or tilt the dome camera. Click the arrows in the directions to be viewed.

5.3.2 Instant Recording

The Instant Recording function allows users to record video quickly to the PC.

NOTE: The Audio function is set to OFF as the default setting.

5.3.2.1 Record Video Instantly

Follow the steps to start recording instantly:

- Click on the <Instant Recording> button.
- Select the destination folder to save the video.
- Click on the button again to stop recording.

NOTE: The instant recording video will be saved as *.drv file.

5.3.2.2 Playback Instant Recorded Video

Follow the steps to playback a video recorded by "Instant Recording".

- Click <Play> on main window toolbar and click <Local Playback> tab.
- Click <Open> to choose a recorded file.
- Click <OK> to start playing the recorded video.

5.3.3 Playback Video

The remote monitoring software allows users to view recorded video either from the DVR, or from the hard disk drive of the PC

To access the Playback screen, click <Play> button on the main window toolbar. There are three tabs in the Playback screen: <Remote Playback>, <Local Playback>, and <Verify> tabs. <Remote Playback> allows users to play back from the DVR. <Local Playback> enables users to playback a recorded video file stored on the hard disk drive of the PC. <Verify> is provided for users to authenticate if the exported video is altered.

The DVR continues recording while playing back recorded video on the PC, either remote playback or local playback.

5.3.3.1 Playback Remote Video

To view remote video, click <Play> on the main window toolbar, and then <Remote Playback> tab. The <Remote Playback> screen will be displayed.

The <From> and <To> in the <Available Record Video> display the date and time from which recorded video is available for playback.

To playback remote video segments, follow these steps:

- Choose <Playback> in <Select> field for playback recorded video.
- In <Start> field, users can change the date and time either by typing desired numbers directly or using the arrow buttons.

  To type directly:
  Click on day, month and year of date field respectively, and type the desired numbers directly. Follow above steps to adjust the hour, minute and second of time field.

  To use the arrow buttons:
  Click on the arrow button next to the date field to display the calendar; then click the left and right arrow at the top of the calendar to change the date. Use up and down arrow next to the time field to change to the wanted time.

- The other way to select date and time is by moving the blue sliding bar.
- Click <OK> to start the playback, or click <Close> to abort.

- The other option <Download (.DRV)> in <Select> field enables users to download the video segment of selected date and time to the PC. The selection of time duration is the same as described above. Files downloaded will be in *.drv format.

5.3.3.2 Playback Local *.drv Files

The <Local Playback> tab allows users to playback *.drv video files stored in the PC's hard drive.

Follow below steps to playback a downloaded *.drv file with the remote monitoring software.

- Click <Open> and the file selection screen is displayed.
- Select the *.drv video file for playback and click <OK>.
- Click <OK> in the <Local Playback> Screen to start the playback, or click <Cancel> to abort.
- View the video playback using the Playback controls.
- To end the playback, click <Live> to return to live video.

5.3.3.3 Playback Controls

When the local or remote video is being played, the remote monitoring software is in Playback Mode. The playback controls toolbar will emerge on the main window toolbar. The Playback controls and indicators are described as below.

Icon	Name	Description
◄◄	**Fast Backward / Step Backward**	1. Click to play the recorded video in backward direction. Click repeatedly to select the backward playback speed: 1x, 2x, 4x, 8x, 16x, or 32x. 2. When playback is paused, click repeatedly to move backward step-by-step.
► / ▌▌	**Play / Pause**	1. While playing, click to pause the playback. 2. When paused, click to resume the playback.
►►	**Fast Forward / Step Forward**	1. Click to play the recorded video in forward direction. Click repeatedly to select the forward playback speed: 1x, 2x, 4x, 8x, 16x, or 32x. 2. When playback is paused, click repeatedly to move forward step-by-step.

5.3.4 Verify Digital Signature

The digital signature aims to authenticate a video file exported from the unit. Follow the description to verify the digital signature.

- Click <Play> on the main window toolbar.
- Click <Verify> tab to display the Verify window.
- Click <Browse> to select the *.gpg, *.avi, *.sig files respectively, which belong to the exported video to be authenticated.
- Click <Verify> to start verifying digital signature.
- The result of verify shows in the <Status Log> field. It returns a GOOD or BAD signature result. A GOOD signature indicates the exported clip has not been altered.

5.3.5 Search from Event List

Click SEARCH, the Event List appears. The List contains information about the alarm events that the unit recorded and saved. Up to 1024 events can be listed in the Event List.

The Event List displays each event by its number, the date and time of the event, the type of the event (including Alarm In, Motion Detection, Video Loss, and Over Speed), and the camera channel where the event occurred.

To view an event video, follow these steps:

- Click SEARCH button positioned in the main window toolbar. The Event List appears.
- Scroll through the Event List and highlight the interested events.
- Double-click on the desired event to view the event video.

5.3.6 Take a Snapshot

Snapshot is a simple screen capture tool. When users click on the SNAPSHOT button, it will capture the screenshot of the window that is currently showing on the screen. Each click captures one screenshot to be saved as a JPEG file on the desktop. The snapshot file will be named as "Snapshot-*".

5.3.7 Health Status

This function verifies the HDD status of the DVR. The information items in the status chart are described as below.

Device Name
This item shows the model name of the HDD.

Int./Ext.
This item indicates whether the HDD is an internal or external device.

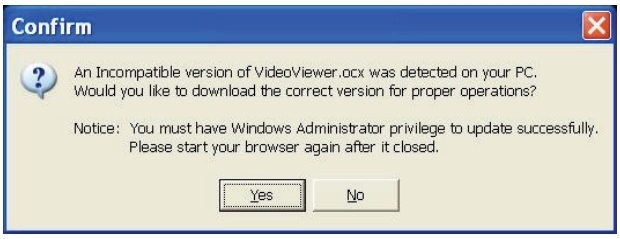
Total Size
This item indicates the total size of the HDD.

State
This item indicates whether the HDD is active or non-active.

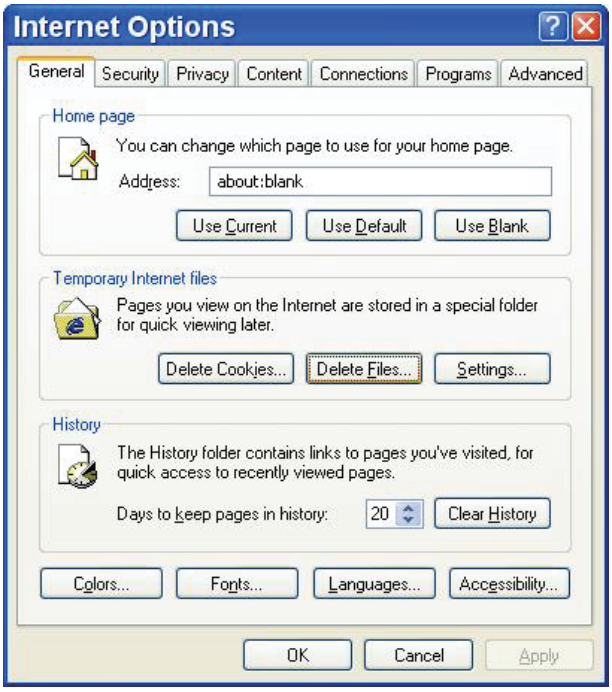
Temperature
This item indicates the current temperature of the HDD in Celsius degree.

5.3.8 Remote Monitoring Software Troubleshooting

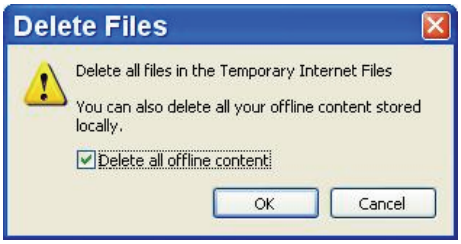
What happened if the server requests to upgrade the software every time the DVR is connected? If the following screen displays repeatedly, please follow the steps to delete the temporary internet files.


Confirm
An Incompatible version of VideoViewer.ocx was detected on your PC.
Would you like to download the correct version for proper operations?
Notice: You must have Windows Administrator privilege to update successfully.
Please start your browser again after it closed.
Yes
No

- Select <Tools> from the main menu of the web browser, then <Internet Options>, and then click the <General> tab.



- Click the <Delete Files> button in the <Temporary Internet Files> field; the <Delete Files> screen displays as below.


Delete Files
Delete all files in the Temporary Internet Files
You can also delete all your offline content stored locally.
Delete all offline content
OK
Cancel

- Check the <Delete all offline content> box and click <OK>.
- Now, enter the IP address of the DVR to make the connection again.

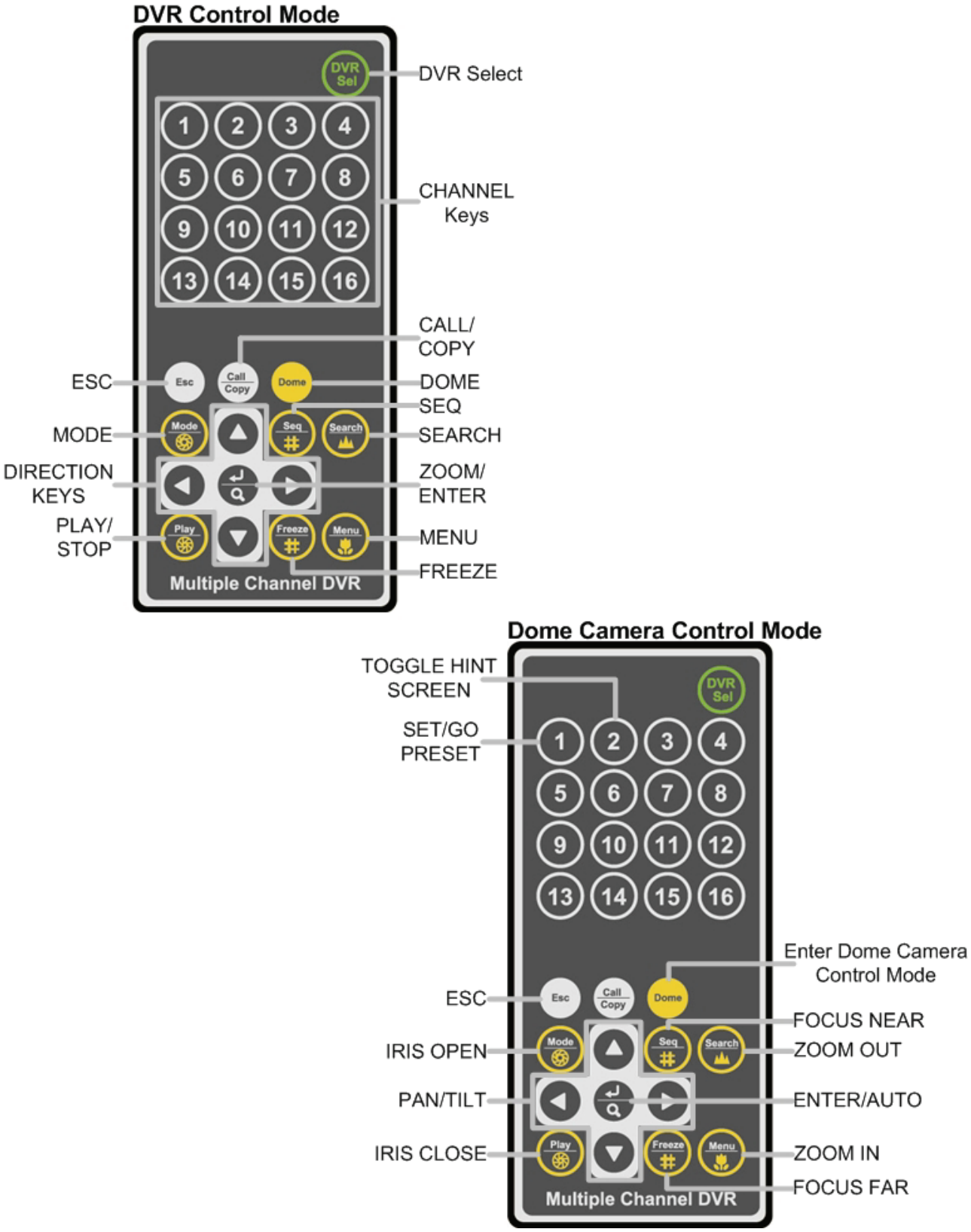
Appendix A: Recommended HDDs

Refer to the following list for some recommended HDDs to be used in the DVR.

Brand	Model Name	Model Number	Size
Seagate	Pipeline HD.2	ST3500312CS	500G
	Barracuda ES.2	ST3500320NS	500G
	Barracuda 7200.11	ST3500320AS	500G
	Barracuda 7200.12	ST3500418AS	500G
	Barracuda 7200.11	ST3750330AS	750G
	Barracuda 7200.12	ST3750528AS	750G
	Barracuda 7200.11	ST31000340AS	1000G
	Barracuda 7200.12	ST31000528AS	1000G
	Barracuda 7200.11	ST31500341AS	1500G
HITACHI	DeskStar	HDP725032GLA360	320G
	DeskStar	HDP725050GLA360	500G
	CinemaStar	HCP725050GLA380	500G
	CinemaStar	HCS721010KLA330	1000G
Maxtor	DiamondMax 22	STM3500320AS	500G

Appendix B: Remote Controller

The operational function keys on the remote control are listed as below figure:



The keys of the remote control function as the keys of the front panel of the DVR. The only difference between the remote control and the front panel keys is the "DVR SEL" key. The DVR Selection key is used to switch control between each DVR.

The remote control can be used to control up to 16 DVRs. To setup the remote control, the first thing is to assign a unique DVR Unit ID to each DVR.

Use the front panel of the DVR, and follow this path to change the DVR Unit ID, <Main Menu> → <System Setup> → <RS485 Setup> → <Unit ID>. Change the DVR Unit ID to any number between 224 and 239, and exit the menu.

The ID Table is listed below for reference.

DVR Unit ID	224	225	226	227	228	229	230	231
Remote Control #	1	2	3	4	5	6	7	8

DVR Unit ID	232	233	234	235	236	237	238	239
Remote Control #	9	10	11	12	13	14	15	16

After the DVR Unit ID is changed, setup the "DVR SEL" of the remote control. Press "DVR SEL", and then press the Remote Control # immediately to select the DVR. For example, assuming the DVR Unit ID is set to 225, press "DVR SEL" and then press "2" immediately. Now, the remote control will only be able to control the specified DVR. Press "DVR SEL", and then press the Remote control # to switch between DVRs.

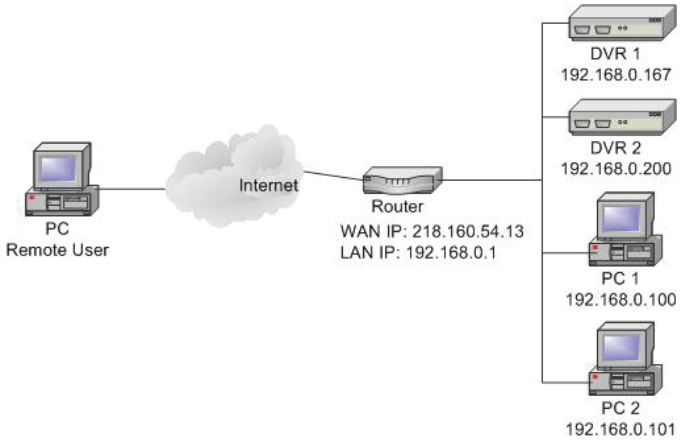
To exit the single DVR Control mode, press "DVR SEL", and then press "ESC" to do so.

Appendix C: Setup a DVR behind a Router

This appendix describes how to set up a router if the DVR connects to the internet via a router.

To properly operate a web server, e.g. a DVR, users have to set up both the IP and port of the DVR, which are essential for data and command transmission. The port setting is adjustable in OSD setup menu of the DVR and only one port is needed to do remote operation. Typically and by the default, the DVR operates on port 80, which is well known as the http port. Please make sure that port 80 is not blocked by the ISP. Otherwise, a different available port shall be reset and the setting of the DVR shall be changed.

In case a router or sometimes a DSL modem is in place, the real IP is now assigned to the router instead of the DVR. The DVR is located behind the wall (router) and operates on virtual IP. In most cases, virtual IP starts with 192.168.x.x. The router has two IP: one is real IP (WAN IP); the other is virtual IP (LAN IP). The virtual IP would be 192.168.x.1. When the remote users want to operate the DVR, they will have to send command to the real IP, i.e. the router. Then the router has to map (forward) the command to the DVR. Thus, it is required to set up the router for port mapping (forwarding) before images from the DVR can be remotely viewed on a PC.

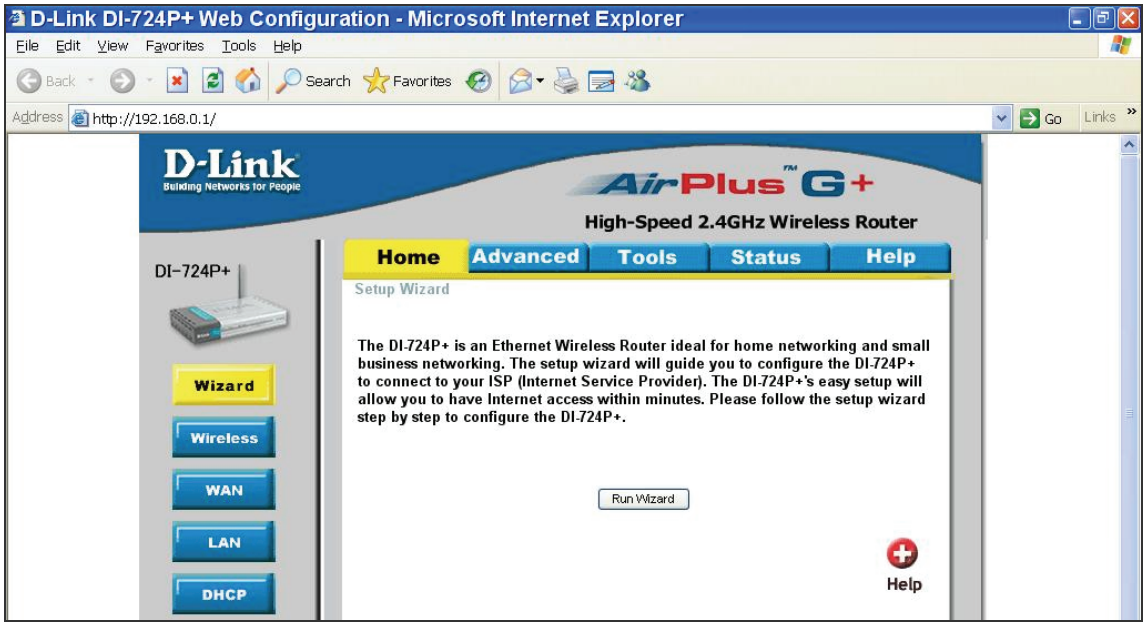


See the router manufacturer's websites for more instructions on port mapping.

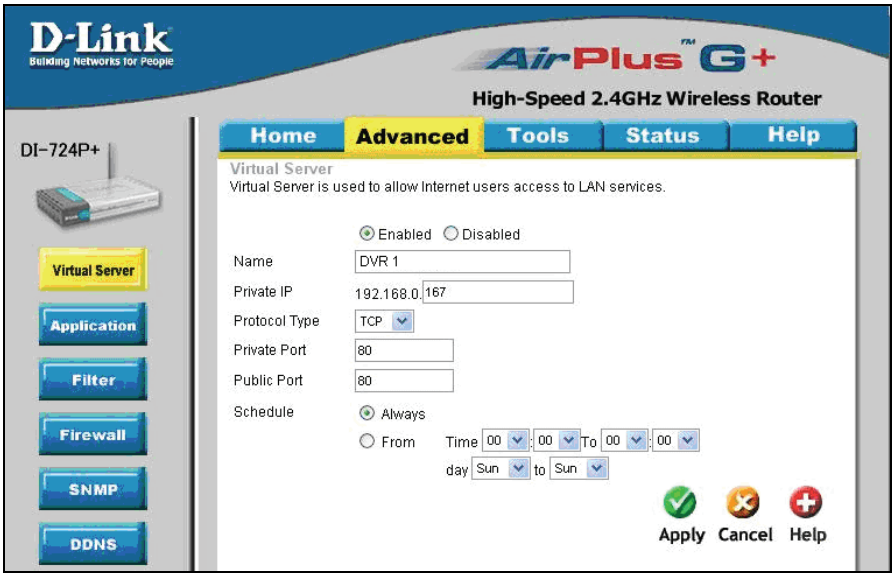
Following is an example of how the router should be set.

Router	PC	DVR 1	DVR 2
(D-Link DI-724P+) WAN IP: 218.160.54.13 LAN IP: 192.168.0.1	IP: 192.168.0.100	IP: 192.168.0.167 Trigger port: 80	IP: 192.168.0.200 Trigger port: 81

- To change the setting of the router, a PC with web browser is required.
- Connect to D-Link DI-724P+ from PC via IE. The setup screen will be shown after entering the correct username and password.

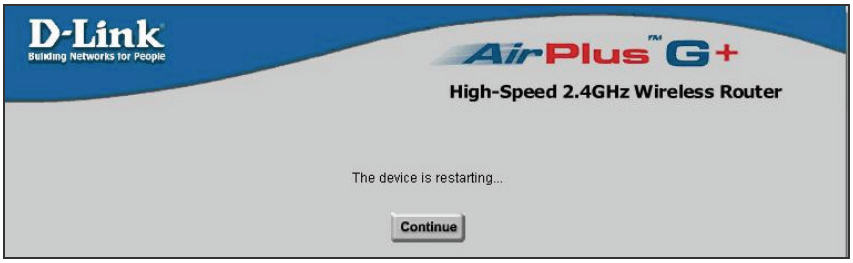

D-Link DI-724P+ Web Configuration - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Address http://192.168.0.1/
D-Link
Building Networks for People
AirPlus G+
High-Speed 2.4GHz Wireless Router
DI-724P+
Home
Advanced
Tools
Status
Help
Setup Wizard
The DI-724P+ is an Ethernet Wireless Router ideal for home networking and small business networking. The setup wizard will guide you to configure the DI-724P+ to connect to your ISP (Internet Service Provider). The DI-724P+'s easy setup will allow you to have Internet access within minutes. Please follow the setup wizard step by step to configure the DI-724P+.
Run Wizard
Wizard
Wireless
WAN
LAN
DHCP
Help

- Click the <Advanced> tab and follow the steps to set up web port forward to DVR 1.



A. Select <Enabled> to set up the service.
B. Enter the name of the setting in the Name field: DVR 1.
C. Enter Private IP: 167
D. Choose <TCP> as the Protocol Type.
E. Enter Private Port: 80.
F. Enter Public Port: 80.
G. Click <Always> for the Schedule setting.
H. Click <Apply>.

- Click <Continue> to go on when the following screen displays.



- Follow the steps to set up web port forward to DVR 2.
  A. Click <Enabled> to set up the service.
  B. Enter the name of the setting in the Name field: DVR 2.
  C. Enter Private IP: 200
  D. Choose <TCP> as the Protocol Type.
  E. Enter Private Port: 81.
  F. Enter Public Port: 81.
  G. Click <Always> for the Schedule setting.
  H. Click <Apply>.

- Now DVR 1 can be connected via http://218.160.54.13:80 and DVR 2 can be connected via http://218.160.54.13:81.

- If there are more than one DVR behind the router, repeat the steps for port mapping setting.